PULP & PAPER

DECEMBER 1957

New Air Drying Techniques
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Noodle Pulping in Texas
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How to Train Safe Loggers
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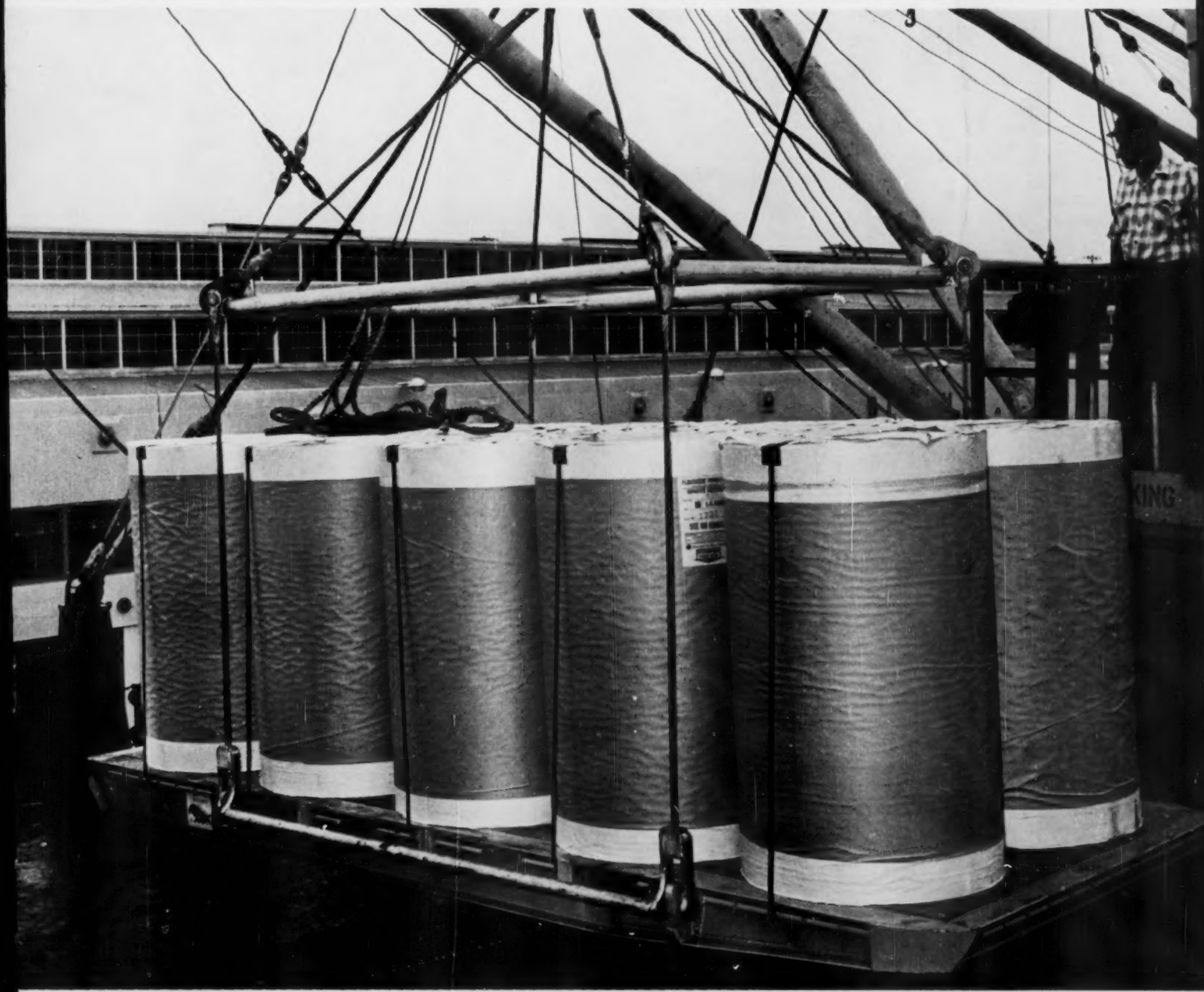

New Roll Handling System . . .
saves damage, time and money . . . story on page 59

how to start
a sales meeting
RIGHT

WE'VE JUST CONVERTED TO AMMONIUM BISULFITE PULPING. A. B. P. GIVES US MORE PRODUCTION, BETTER QUALITY AND CUTS OUR MAINTENANCE COSTS.
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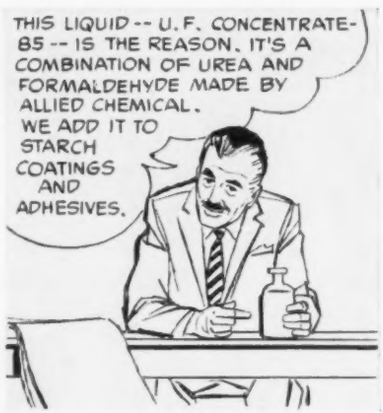
NEXT, WE'VE IMPROVED OUR COATED PAPERS. YOU FELLOWS HAVE BEEN ASKING FOR A COATING WITH MORE WATER RESISTANCE. WELL, HERE IT IS...
THAT'S FOR ME!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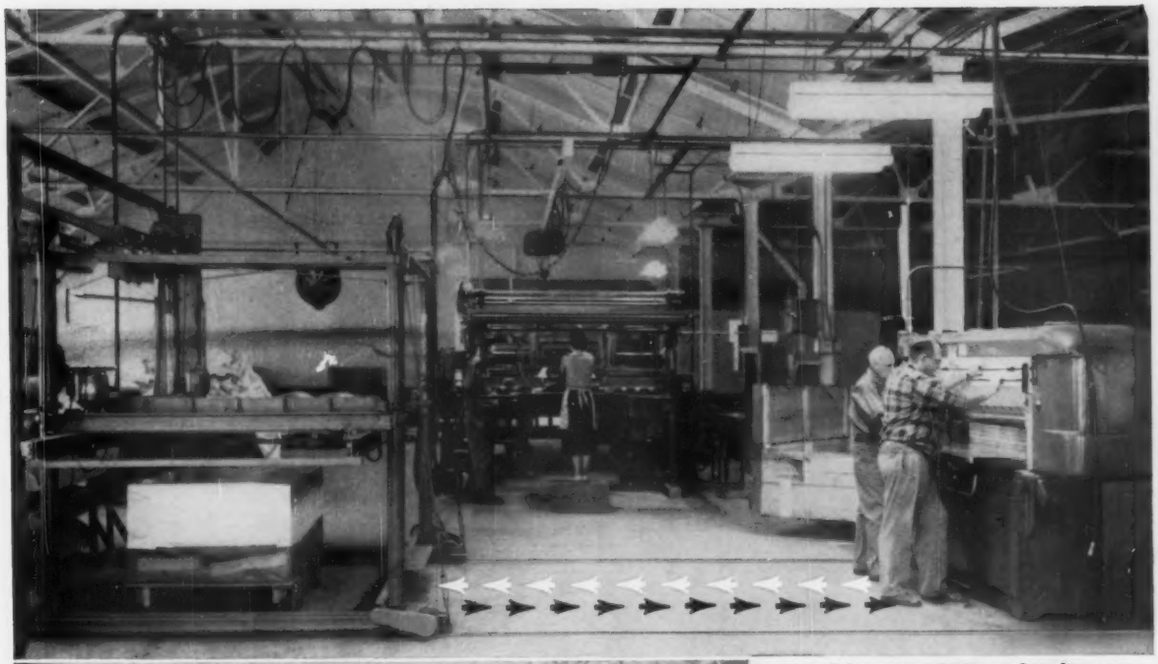

Photos courtesy of Kalamazoo Paper Co.

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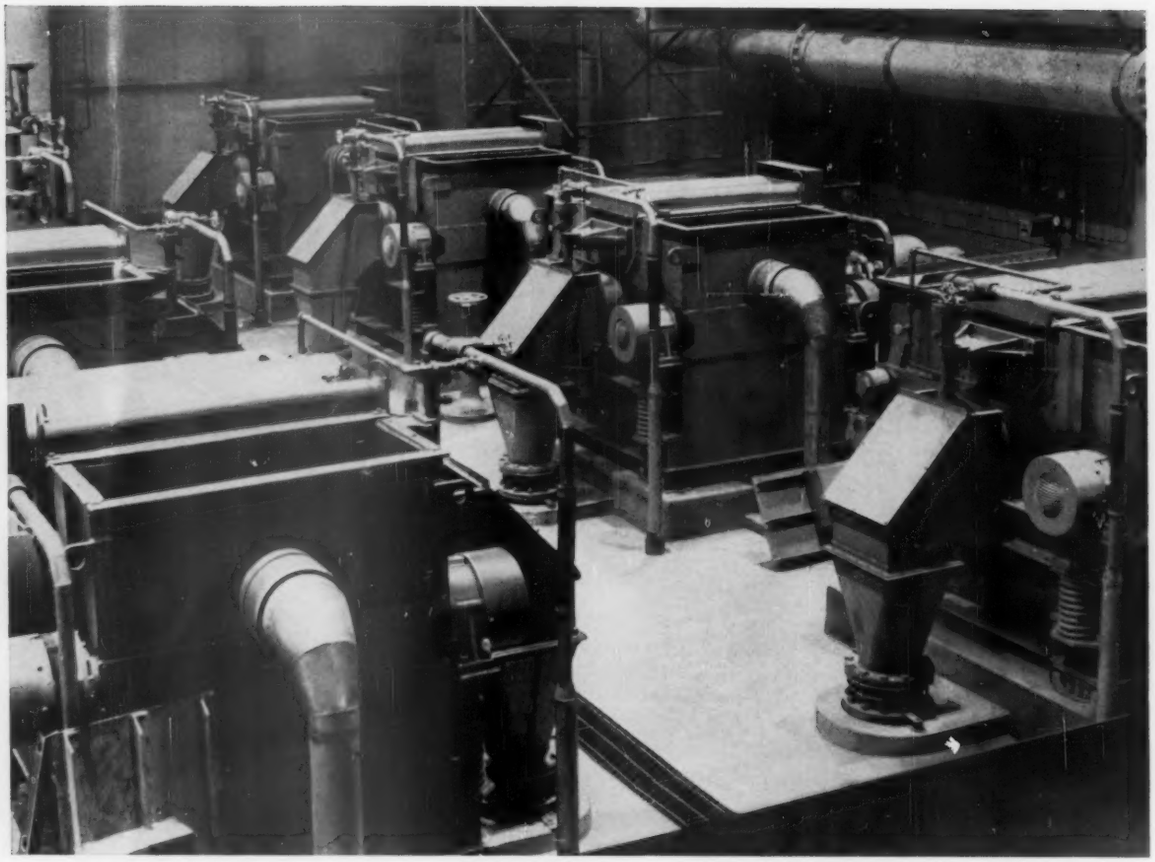

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PULP & PAPER

Reader's Guided Tour

VOLUME 31
NUMBER 13

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Damage-free palletized newsprint rolls are unloaded at Los Angeles destination — part of pallet-van system now in use on Pacific Coast that reduces normal shipping-handling damage by 93%. Story on page 59.

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THE EDITOR READS HIS MAIL

Address letters to The Editor, PULP & PAPER, 1791 Howard St., Chicago 26, Ill.

On Power Saw Safety

—Port Arthur, Ont.

Editor: In November issue, I read with much interest the article in the Pulpwood Section headed: "How to Reduce Power Saw Accidents," especially as it was I who spoke in regard to the demonstration of sparks emitted from a power saw when screened. To obtain the maximum result, the saw should be operated at full power, cutting through an 8 or 10 in. green log. This demonstration is to show the potential fire hazard of a power saw without screen in place.

I noticed also in your section "The Last Word" that one of your editors had been covering operations in Ontario. I regret very much I was away. I was very much impressed with excellent coverage and pictures of Dryden Paper Co. operations.

R. A. HOLLINQUIST
Mgr., Northwestern Ontario
Timber Operators Assn.

Woods Thrills for Engineers

—Portland, Ore.

Editor: I was pleased to see the report of the plans for the 13th Annual TAPPI Engineering Conference in Portland, Ore., July 28-Aug. 2. However, I wish to correct one statement you made. You stated that Weyerhaeuser Timber Co. is going to be host for a woods trip. Both Weyerhaeuser Timber Co. and Crown Zellerbach Corp. have offered to sponsor a woods trip.

J. M. WILCOX
General Chairman,
1958 TAPPI Engineering
Conference

Eds. Note—We vote for both woods trips. Some industry engineers tell us they are going west on vacations, tied in to the meeting. So they will have the time. Going that far, engineers ought to take plenty of time to see things this industry is doing out on the Pacific slope. We have made several trips to Crown Z's Tree Farm area high above the Oregon seacoast and Weyerhaeuser's on the high slopes of snow-capped Mt. St. Helens. Both would be spectacularly different, both would be thrilling experiences.

Dominican Seeks Agency

—Ciudad Trujillo, D.R.

Editor: We are interested in securing the exclusive representation, on a commission agency basis, of an important and reliable firm or firms in the United States actively engaged in the manufacture and/or export of all kinds of paper and paper products. Our bankers are The Royal Bank of Canada and the Banco de Reservas de la Republica Dominicana, Ciudad Trujillo.

It might also be of interest to know that the undersigned, sole owner of this concern, and Under Secretary of State for Industry and Commerce of the Dominican Republic, has had several years business experience, and now enjoys a capital in excess of half a million dollars.

RAMON MENENDEZ
(Telephone 2075—P.O. Box 1213)

Suggestions to the South On How to Stop Arsonists

Tama, Iowa

Editor: Regarding the reports of fires set by arsonists in the big woods down South—a matter of great concern to timber owners and paper mill executives—there is some good advice these people could take. It is a matter of "welcome" signs versus "no trespassing" signs.

The back-country people naturally feel resentful at "no trespassing" signs and feel the big companies are simply taking the country away from them. So any imaginary injury to them may bring on the act of firing the woods to get even. I heard one back country man say, "If the big shots keep on buying up all our land there won't be no place for us even to walk except in the middle of the country road."

There is every reason to believe that if the paper mill people would put up a few hunting shacks for the back country people to use, invite them in to hunt and fish and push propaganda against firing the woods, there would be a lot more cooperation from the natives. A public relations man could be hired for this. He would make friends and put a few of the back country boys on the payroll at a nominal salary as fire wardens. Naturally he would want to pick those known to have a propensity for firing the woods. This would not cost too much; I am sure it would be cheap compared to a fire which can cost a lot of money and time waiting for more timber growth.

JOHN H. HELIG
Plant Mgr., Iowa Wood Preserving Plant, Div. of Joslyn Mfg. and Supply Co.

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... of significant news and views

General Outlook

HIGHEST PAPERBOARD TONNAGE IN HISTORY . . . A total of 308,059 tons of paperboard produced during the week ending Oct. 19, 1957 broke the previous production record of 300,900 made in Jan. 1956. In spite of record production, order backlog is 25,000 tons higher than a year ago. . . .

PULP EXPORTS AHEAD OF LAST YEAR . . . Survey of pulp activity by Lawson P. Turcotte, pres., Puget Sound Pulp and Timber Co., shows pulp exports about 15% ahead of last year. American mills produced 16,321,000 tons of pulp in first nine months of 1957, compared to 16,663,000 tons in the 1956 period. Indicated consumption of 17,456,000 tons compares with 18,020,000 tons a year ago. . . .

U.S. NEWSPRINT USAGE DOWN only 7/10th of 1% for first nine months of 1957, compared to the corresponding period in 1956, according to American Newspaper Publishers Assn. Operating ratio of Canadian newsprint mills declined to 91.1% of capacity at the end of Sept., compared with 105.4% of a smaller capacity in Sept., 1956. . . .

MARKETING TECHNIQUES WILL OVERSHADOW PRODUCTION and mass sales methods will become "the watchword of the day," according to Philip M. Talbott, president, Chamber of Commerce of the U.S. Predicting a 50% increase in personal consumption of goods and services by 1965, he cited volume selling of supermarkets as a clue to future techniques (also a clue to the ever-increasing importance of packaging). . . .

ORDERS FOR PAPERBOARD ARE STRONG and show indications of continuing that way, David L. Luke, president of West Virginia Pulp & Paper Co., told The Wall Street Journal recently. The company's $100 million expansion program, originally planned for the next five years, will be stretched out over six years. "We're thinking about some new financing," Mr. Luke said. What kind hasn't been determined. . . .

BUSINESS VOLUME REMAINS NEAR RECORD HIGH, even though competition is tough, according to a recent survey by the National Assn. of Purchasing Agents. Except for many raw material markets, commodity prices are at most stable level in many months.

NEWSPRINT NEEDS WILL INCREASE 50% by 1980 to over 10,000,000 tons, according to Newsprint Information Committee, 150 E. 42nd St., New York. Eight new newsprint machines and plants starting up in '57 included two 100,000 tonners, largest ever built. In 1958 five more of these giants go into operation. The two years ending Jan. 1959 will have seen the greatest expansion in the industry's history, adding 1,300,000 tons a year at a cost of about $500,000,000. . . .

LOOK FOR RISE IN FIBER BOX DEMAND IN '58 . . . Dr. Charles F. Roos, chairman, The Econometric Institute, forecasts average weekly demand of 1.9 billion sq. ft. of corrugated and solid fiber shipping containers during the year ending Sept. 1958, above the demand level for previous year. Inventories reached rock bottom in July 1957. . . .

Mills and Mill Plans . . .

BOARD MILL IN PRODUCTION . . . Abitibi Power & Paper Co., Ltd.'s new $18,000,000 hardboard and insulating board mill at Alpena, Mich., has started production.

Please turn page for more

MECHANICALLY OPERATED POPPET TYPE VALVE

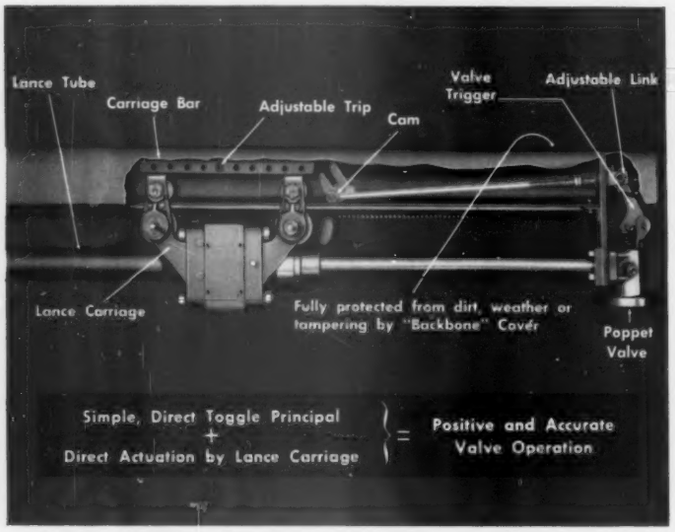
(WITH ADJUSTABLE PRESSURE CONTROL)

additional important features of the *NEW*

Diamond

Series 300 IK

LONG RETRACTING BLOWER



This valve was adopted for the new Series 300 IK because long experience has proved it the most satisfactory of all designs for severe blower service. More than 300,000 of this basic design are in use on various Diamond Blowers and have established notable service records. A recent improvement is more streamlined flow contours that permit higher flow rates with less pressure drop.

The direct mechanical linkage for actuating the valve offers the advantages of greater reliability and safety . . . in addition to more accurate control. Numerous other important features of the Series 300 IK are listed at the bottom of page. These are the reasons why this blower is establishing a new standard of efficiency, economy and dependability in cleaning heating surfaces that require a long retracting blower.

Bulletin 2111 pp tells much more about the Series 300 IK; ask your local Diamond office or write directly to Lancaster for a copy.

SERIES 300 IK—LONG RETRACTING BLOWER

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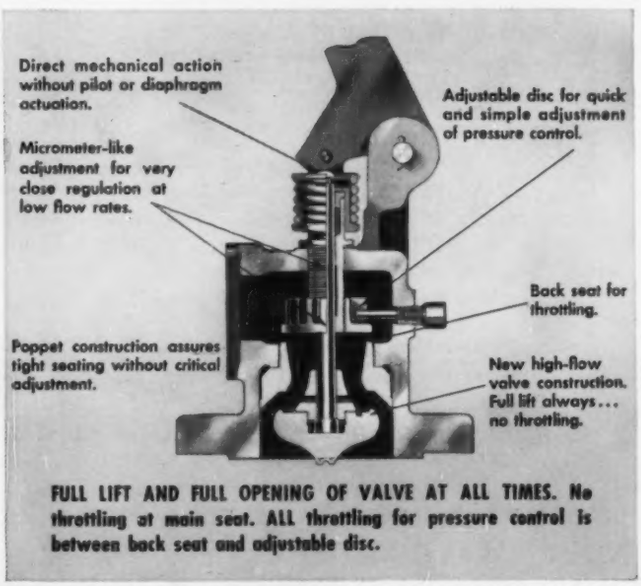
- Auxiliary Carriages for Extra Long Travel
- Designed for Quick, Easy Servicing

No other blower gives you all these advantages.

Diamond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Diamond Specialty Limited, Windsor, Ontario

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PULP & PAPER Monthly Report

... of significant news and views

RE-AFFIRM PLANS FOR CALIFORNIA MILL . . . Georgia-Pacific Corp., with a 15% sales rise in 9 months and expecting higher earnings and sales in 1958, says its $22 million kraft pulp-paper-paperboard mill under construction at Toledo, Ore. will add $14 million in sales. Construction of a kraft mill at Eureka, Calif. is still part of long-term planning. . . .

WILL GO AHEAD WITH SULFATE PULP MILL . . . K. C. Irving and associates will build the $16,000,000 mill at Lancaster, near St. John, N.B. The city of St. John has guaranteed water supply and a $500,000 pipeline from Loch Lomond is proposed.

NEW ENGLAND'S FIRST FINE PAPER MILL SINCE 1912 . . . Hurlbut Paper Co., recently merged with The Mead Corp., hopes to open its new mill near Lee, Mass., next spring. Hurlbut and Chemstrand Corp. have developed a synthetic fiber paper for electrical uses, chemical filtration and other special purposes (see page 55).

NEWSPRINT MACHINE TO START UP . . . Climaxing a 5-year project costing some $20,000,000, a new Beloit newsprint machine will start up in January at the Ontario-Minnesota Pulp and Paper Co. Ltd's mill in Kenora, Ont. . . .

"WORLD'S LARGEST" RECOVERY UNIT STARTS . . . Longview Fibre Co. has its new No. 15 Combustion Engineering recovery furnace in operation at Longview, Wash., designed for generating 320,000 lbs. steam per hr. at 825 psi and burning 2,000,000 lbs. of dry solids daily (equivalent to 570 tons of pulp). . . . Tileston & Hollingsworth Co., Boston, started up a Combustion Engineering boiler, capacity of 70,000 pph with pressure of 405 psi at 500 degrees F. . . .

MORE POWER FOR WISCONSIN MILLS. . . . A new Babcock & Wilcox coal-burning boiler, producing 155,000 pph steam at 600 psi, temp. 700 degrees, has been installed at Thilmany Pulp & Paper Co., enabling speed-up of its new No. 12 Black-Clawson machine. . . . The Biron div. of Consolidated Water Power & Paper Co. boosted its steam capacity by 15,625 kw, starting up a two-cyclone Babcock & Wilcox boiler designed to produce 250,000 pph of steam per hr. at 1,450 psi, 950 degrees F. . . .

TO BUILD MILL IN ONTARIO . . . The Hinde & Dauch Paper Co. of Canada, Ltd., West Virginia Pulp and Paper subsidiary, announced plans to build a multi-million dollar paperboard mill on a 50-acre site west of Toronto, Ont. . . .

PLANS APPROVED FOR GYPSUM PLANTS . . . U.S. Gypsum Co. directors approved a multi-million-dollar gypsum wallboard plant in Galena Park, Tex., to be completed by early 1959. Bestwall Gypsum Co. also announces a gypsum board and lath plant near Savannah, Ga., first phase of a program for other plants on the East Coast. . . .

CARTON PLANT OPENED . . . Container Corp. of America formally opened its new $900,000 folding carton plant at Renton, Wash. . . .

NO. 3 NOW ON FULL-SCALE PRODUCTION . . . Substantial part of a $1,500,000 improvement is complete at Hartford City Paper Co., Hartford City, Ind., according to Clifford L. Kraning, vice pres. and gen. mgr. The firm's third Fourdrinier paper machine, a Black-Clawson, is operating full-scale. . . .

Please turn page for more

MON. DEC. 30
TUES. DEC. 31
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THURS. JAN. 2
FRI. JAN. 3
SAT. JAN. 4
SUN. JAN. 5
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PULP & PAPER Monthly Report

... of significant news and views

MEAD PURCHASES 24 ACRES IN GEORGIA, ACQUIRES MEMPHIS PLANT . . . Mead Corp. purchased a 24 acre tract near historic Peachtree Creek in northeast Atlanta for approximately $145,000. Site will probably be used for a converting plant but Mead has made no announcements. Mead Containers Inc. has acquired Shelby Paper Box Co. in Memphis, Tenn. . . .

INTERNATIONAL DEBUTS NEW RALEIGH PLANT . . . International Paper Co. raised curtain on its new milk container plant in Raleigh, N.C. to make Pure-Pak paper milk container blanks. It will produce 50 million containers a month, is latest of 10 modern converting plants built by IP.

BOGALUSA MILL STARTS UP BAG PLANT. . . . A seasoned team from Crown Zellerbach's west coast multiwall bag operation will head up the new $4 million Gaylord multiwall bag operation at Bogalusa, La. . . .

SOUTHLAND ORDERS DRIVE FOR NO. 4. . . . A new multiple generator transistor-amplistat control—3100 hp sectional drive has been ordered by Southland Paper Mills, Inc., for its No. 4, 270-in. Pusey and Jones newsprint machine. The drive will have a speed range of 1000 to 2700 fpm. . . .

Other News . . .

PULP, PAPER MACHINERY EXPORTS ROSE IN '56 . . . Exports of pulp and paper machinery, excluding converting machinery, in 1956 increased almost 46% over 1955, according to the Business and Defense Services Administration. Canada, Mexico, United Kingdom, Italy and Finland were leading markets. . . .

PAPER THAT STRETCHES LIKE RUBBER . . . West Virginia Pulp & Paper Co. is working on stretchable paper, based on principles of the Sanforizing process for pre-shrinking cotton fabrics. It would be used for bags. . . .

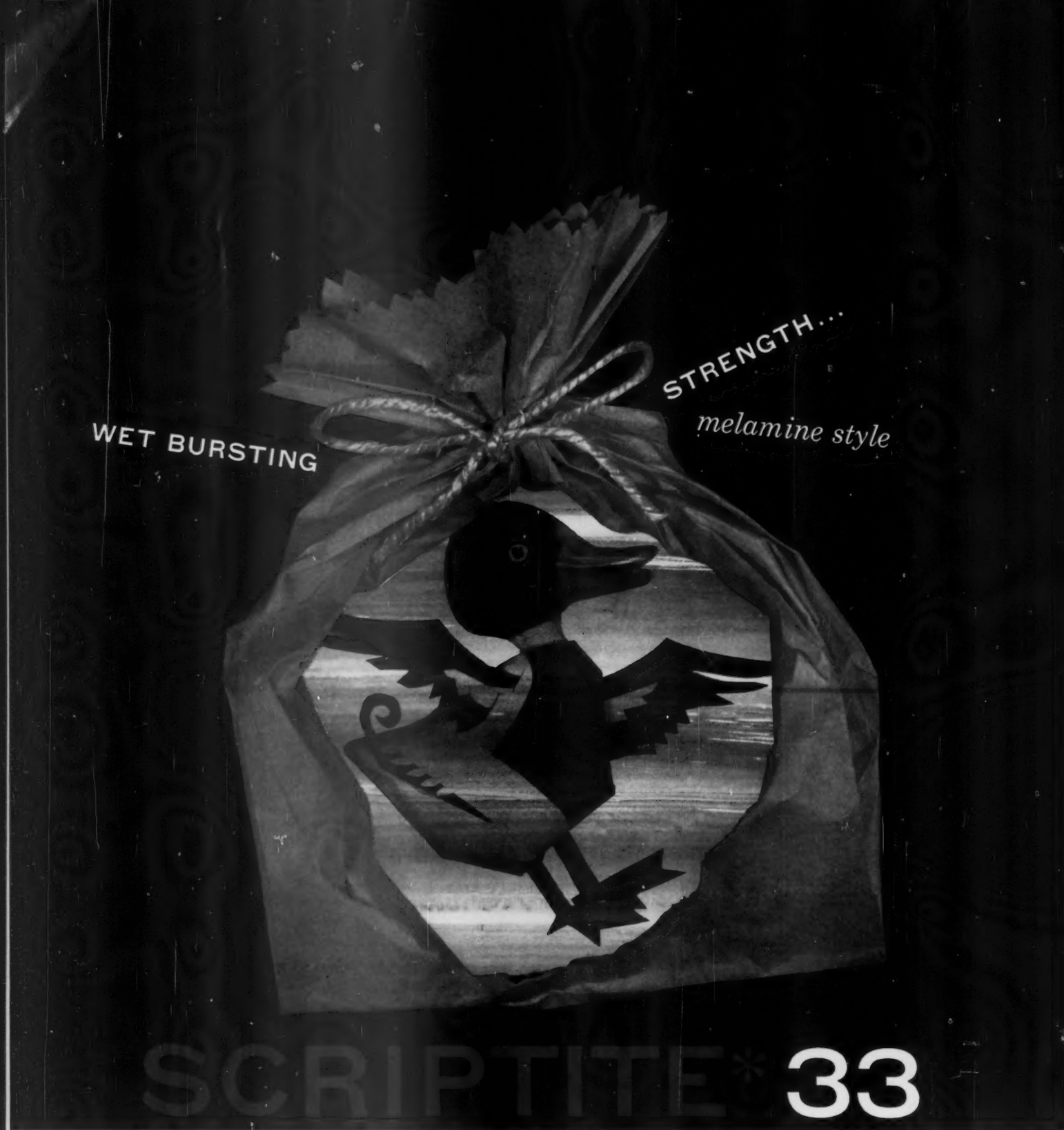
FINANCING FOR ALASKAN MILL . . . In the first U.S. securities sale by a Japanese company in some 25 years, Alaska Lumber & Pulp Co. placed $12 million of first mortgage 6% bonds, due 1976, with U.S. insurance companies and pension funds, to help finance its projected pulp mill at Sitka. Dillon, Read & Co. negotiated the financing. Senior notes for an additional $7 million are being placed with U.S. equipment suppliers. Alaska Pulp Co., Ltd., Japanese parent firm of Alaska Lumber & Pulp, will provide the remaining $36.5 million. . . .

MERGERS GO THROUGH . . . Confirming our report last month, Marathon Corp. and American Can Co. agreed on a merger. Directors approved merger of J. O. Ross Engineering Corp. and Midland Steel Products Co. to be Midland-Ross Corp. and Stockholders of Diamond Match approved acquisition of Gardner Board & Carton (to be Diamond Gardner Corp.). . . .

TO ATTRACT INDUSTRY TO ALASKA . . . Qualifying industries are offered exemption from all territorial and local taxes for up to ten years. . . .

RE-ORGANIZE TIMBER COMPANY . . . Pacific Northern Timber Co., Portland, Ore. which holds contract for 3 billion ft. of timber in Alaska, on condition it build a pulp mill and lumber mill near Wrangell, has undertaken re-organization. C. Girard Davidson, former secretary, acquired 50% ownership and is to be president. . . .

NAMES ARE CHANGED . . . Boise-Cascade Corp. changed names of its recently formed subsidiaries—Columbia Kraft Corp. to Cascade Kraft Corp., Columbia Container Corp. to Cascade Container Corp. The firm is building a pulp and paper mill and container plant near Walla Walla, Wash. . . .



A melamine resin supplied as a finely divided dry powder, Scriptite 33 is a ready source of unusually high wet strength for many paper products. And this is strength that won't appreciably weaken even under excessively moist conditions over a long period of time.

Count on Scriptite 33 to increase dry tensile strength and wet rub resistance . . . to improve dry Mullen, wax pick, internal size efficiency, dry stiffness. Scriptite 33 produces papers with strong fold endurance.

Call on the Monsanto Paper Resins Department for experienced assistance in formulating and testing. For laboratory samples of Scriptite 33 and technical bulletin, write Monsanto Chemical Company, Plastics Division, Room 1905, Springfield 2, Mass.

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The Monsanto Line of Paper Resins also includes

SCRIPTITE 40 . . . *a urea type wet-strength resin.*

SCRIPTITE 50 . . . *for unsurpassed printability and improved surface characteristics on boxboard.*

SCRIPTITE 52 . . . *in combination with formaldehyde to give water resistance to folding boxboard and to jute liner.*

SCRIPTITE 54 . . . *for outstanding water resistance and both wet and dry rub resistance.*

WORLD PULP & PAPER General News

Guar Gum for World Mills

Karachi—Habib-General Ltd., a Pakistan company in which General Mills, Inc., Minneapolis (U.S.A.), has a 60% interest, has begun guar gum processing at a new plant here. Guar gum is widely used in paper and other industries. B. M. Hagan, a vice president of General Mills and general manager of the company's Special Commodities Division, has returned to U.S. after conducting the first meeting here of directors of Habib-General as board chairman. General Mills operates a large guar gum plant at Kenedy, Tex., now serving the paper industry in America. Guar gum production of the Karachi plant will be marketed principally in Europe, Australia, Asia and Africa.

Guatemala Mill Expanding

Guatemala City . . . The only mill in the world to use lemon grass as a papermaking fiber is still using this plentiful material, Minor R. Keilhauer, president of Industria Papelera Guatemalteca, the pioneering company, told PULP & PAPER. Just back from a trip to United States where he is negotiating for a second paperboard machine and other equipment, he has extensive plans for expansion. His is the only mill between Mexico and Colombia. Lemon grass, after being processed for oil in another of his plants, is mixed with waste paper as furnish for corrugating containerboard.

Soviet Reports Timber Output

Moscow . . . Last year timber output in the U.S.S.R. amounted to 340 million cubic meters. The paper and board industry used 4% of this. Soviet newspapers complain the industry wastes about one million cubic meters annually, or about 50 to 100,000 cubic meters in every cellulose mill, which could be used for board and packing paper.

Makes Paper from Bullrushes

Plon, West Germany . . . The Plon Hydro-Biological Institute of the Max Planck Society has succeeded in making paper from the bullrush plant, *scirpus lacustris*, generally used for baskets and chair seats. Large quantities have been planted along the North Sea and Baltic coasts and more will be planted at Walvis Bay on the coast of southwest Africa. Requests for plants have come from Korea, Finland, Sweden and Holland. An Italian chemical concern has acquired the rights of production.

Norway's New M.G. Machine

Torp, Norway . . . One of Norway's leading kraft mills here, owned by And. H. Kiaer and Co., Ltd., recently started up a new 180 in. wide M.G. machine, with a yearly capacity of about 15,000 tons. The pulp mill at Torp was expanded a year ago so the mill has sufficient pulp.

To Build Groundwood Mill

Stockholm . . . Uddeholms A/B plan a groundwood mill at Gota on the site of the firm's sulfite mill which was destroyed by a landslide last summer. The $2,000,000 plant, scheduled for startup by 1959, will produce 44,000 tons of 90% pulp annually.

Taiwan Bagasse Mill Financed

Kaohsiung, Taiwan . . . ICA has authorized a loan of $900,000 to the Taiwan Sugar Corp. for construction of a bagasse board mill at Kaohsiung in southern Taiwan. Capacity will be about 60 tons per day.

Opens Overseas Dept.

New York . . . Peter Schoenburg, present director of export of J. M. Huber Corp., will head a new International Dept. to handle foreign business. Headquarters will be at 100 Park Ave.

Argentina Permits Imports

Buenos Aires . . . The Argentine National Bank has lifted a ban on imports of pulp and paper machinery, making limited imports possible. Machines costing under $15,000 can be imported freely and more expensive machines can be imported on eight-year credit terms.

Mexican Firm Buys U.S. Machine

Mexico City . . . Empaques de Carton "United," S.A., bought a secondhand machine from Hinde & Dauch Paper Co., Gloucester, N.J. The machine, which has a capacity of 100 tons a day, is being delivered now. The company hopes to start production in about a year. Mitchell Thom, former Canadian supt., is mill mgr.

New Mill for Brazil

Rio de Janeiro . . . The National Development Bank has granted a $3,000,000 loan to finance a bagasse paper mill to be built by the Brazilian firm, Celubagaco. Noble & Wood Machine Co. (U.S.A.) will provide technical services and machinery.

Predict Pulp Capacity of 5.8 Million Tons by 1960 in Sweden

Stockholm . . . If current expansion programs are carried out, Sweden's pulp capacity will be about 5.8 million short tons by 1960, an increase of 1.3 million tons over 1956. The greater part will result from expanding and improving existing mills. About one-third of all pulp in international trade comes from Sweden.

10% Rise in Newsprint Use

Naples . . . M. Robert Salmon, pres., French Bureau Central des Papiers de Presse, reported to the International Federation of Newspaper Publishers in Naples that newsprint consumption in eleven European countries will rise nearly 10% during 1957. Last year consumption in these countries rose 7%, or 143,000 tons. They increased production by 155,000 tons.

Activity in Colombia

Bogota . . . There has been much uncertainty about plans for Colombia mill. But now it is learned the Container Corp. of America in conjunction with the Colombian Institute for Industrial Development is planning a mill in the oil region of Barrancabermeja on Magdalena River. Local tropical timber will be used to produce writing paper, newsprint, wallpaper and special papers. Another mill, sponsored by W. R. Grace and Co., may be built at Cauca in the Cali valley. It would produce annually about 30,000 tons of various papers, not newsprint.

No. 2 Machine for Finnish Mill

Helsinki . . . Enso-Gutzeit Oy has ordered a paper machine from Beloit Iron Works (U.S.A.) for its newsprint mill at Summa. The new machine is to go into operation by the summer of 1958.

Indian Mill Starts Up

Dalmianagar, India . . . Rohtas Industries started up two new machines, Nos. 4 and 5, recently, to increase its capacity 13,000 tons per year for a total capacity of over 50,000 tons. The Yankee type machines, imported from West Germany, will produce M.G. kraft, poster, colored sulfite, M.G. tissue, bank and bond papers.

$2,200 investment in Farval brings $112,500 increase in paper bag production

FARVAL—
Studies in Centralized Lubrication
No. 173

A WEBER paper bag machine at Ohio's General Bag Corporation had to be thoroughly greased once a week. Greasing the 84 bearings on the machine by hand meant a complete 3-hour shutdown. Productionwise, that's 15,000 bags lost—worth $500—every week!

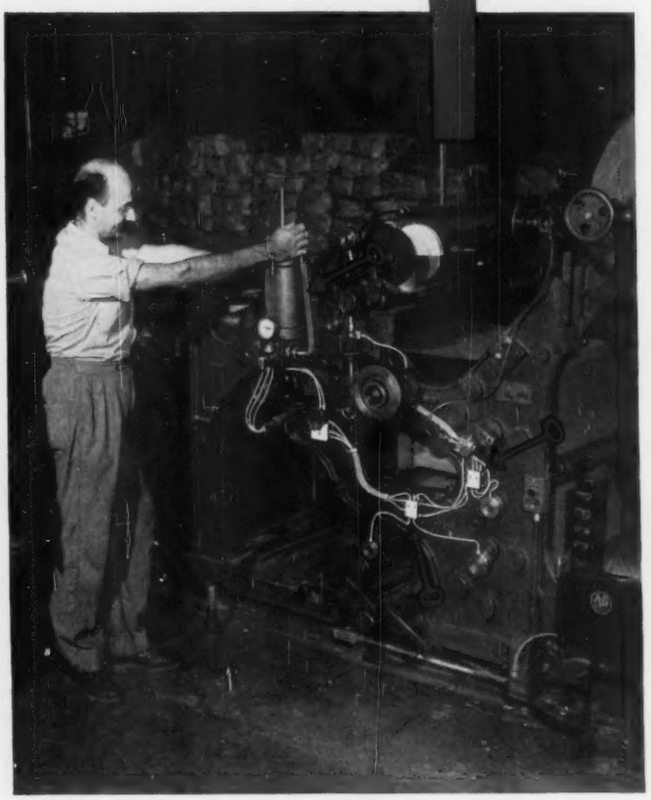
To remedy this situation, the management invested $2,200 and installed Farval Centralized Lubrication. Instead of 3 hours, lubrication now takes only 3 *minutes!* And Farval lubricates the bag machine while it is in operation.

By eliminating the need to shut the bag machine down for lubrication, $112,500 has been added to bag production in 4½ years! Plus 50% savings in grease! So impressive are these figures that management had a new $80,000 bag machine *Farvalized,* too. On the basis of savings realized on the old machine with Farval, the new machine will be paid for in just slightly over three years.

Farval is the foolproof Dualine system of centralized lubrication that delivers a measured amount of clean lubricant at regular intervals to every bearing. From a central station, lubricant is pumped under pressure to a measuring valve at each bearing, providing the exact amount of lubricant desired.

This example indicates the tremendous savings Farval can bring on industrial equipment—in production, lubricant, man hours! It can do a similar job for you. At your invitation, we will send one of our lubrication engineers to inspect your plant equipment and present a written analysis of what Farval can do for you. Write for Bulletin 26, an illustrated 20-page book telling the full Farval story. The Farval Corporation, 3268 E. 80th St., Cleveland 4, O.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.



The operator of the Weber bag machine demonstrates how he lubricates it by a few strokes of the Farval pump handle. Photo by courtesy of the General Bag Corporation, Cleveland, Ohio.

KEYS TO ADEQUATE LUBRICATION—Wherever you see the sign of Farval—the familiar valve manifolds, dual lubricant lines and central pumping station—you know a machine is being properly lubricated. Farval manually operated and automatic systems protect millions of industrial bearings.

WORLD PULP & PAPER Technical News

By CURTIS L. BROWN
Prepared especially for PULP & PAPER

The core of the pulp- and papermaking process and the crux of successful production is, of course, the defiberizing process. To manufacture a high-quality product from the woody raw material requires thorough knowledge in pulping and stock-preparation fundamentals. For these reasons, we have led off this World Technical News page with developments in pulping, beating, and refining processes as reflected in the foreign technical press.

Below are abstracts of pertinent information from various countries. They deal with fundamental studies and improvements in mechanical, chemical, and semichemical processes, operation of beating and refining equipment, among other subjects. (Eds. note–

Selections are presented with permission of The Institute of Paper Chemistry and with assistance of Mr. Brown, editor of the Bulletin of the Institute. Photostats and/or translations of original reports may be obtained by writing Eugene Bunker, librarian, The Institute of Paper Chemistry, P.O. Box 498, Appleton, Wis.

Effects of pH in Beating

MÜLLER-RID, W. and GÜNTHER, H. J. The effect of pH on the power economy of the beating process and on the properties of paper. Wochbl. Papierfabrik. 85, no. 12: 458-66 (June 30, 1957). [In German] Bull. Inst. Paper Chem. 28: 17-18.

The results of many industrial chemical processes depend on a proper pH. In the field of papermaking, a number of processes require a constant pH, among others the beating process. A review of the literature on the subject is given. Results of experiments with sulfite and kraft pulps beaten in laboratory and plant-scale refiners are reported. The effect of pH on the course and efficiency of beating showed good agreement with earlier results: beating in neutral or alkaline media always gave a certain saving in beating power, compared with acid media. Equal results were obtained using a laboratory hollander and a refiner (2R) of 80-120 kw. capacity. The acidification required in the sizing process always causes a considerable decrease in the strength of paper. With sulfite pulp it makes no difference whether size and alum are added at the beginning of the beating process or later; with kraft pulp, however, the additions must be made after the beating is completed. More research on sizing in alkaline media is urged, because it seems paradoxical to aim at high paper strength by an exact control of beating, when it is lost later during sizing. 32 figures and 10 references. J.S.

German vs. Finnish Methods

EKSTAM, TORSTEN. Investigations with the "Jokro-Mühle." Paperi ja Puu 39, no. 6: 309-16 (June, 1957). [In English; German and Finnish summaries]; Bull. Inst. Paper Chem. 28: 17.

Bleached, semibleached, and unbleached kraft pulps and bleached and unbleached sulfite pulps were beaten in a Jokro mill (standard German beater for pulp-strength testing) and in a Valley beater (used in Finnish standard test). Sheets were formed and tested by the Finnish method A 1011 after beating in both apparatus and by the German method (using a Rapid-Köthen sheet former) after beating in the Jokro mill. The latter permitted somewhat faster beating but, like the Lampén mill, gave pulps of lower tearing strength than did the Valley. Tensile and bursting strengths were higher for sulfite but lower for kraft pulps after beating in the Jokro than after the Valley. The German and Finnish standard tests gave almost the same strength values for bleached sulfite and approximately the same tearing strength for unbleached sulfite and for bleached and unbleached kraft. However, the German method gave higher tensile and bursting strengths for unbleached sulfite and lower values for bleached and unbleached kraft pulps than did the Finnish method. Differentiation (or classification) of various pulps, including bleached sulfite, seemed to be as good in the Jokro mill as in the Valley beater. 7 tables, 14 figures, and 5 references. C.L.B.

Demonstrates Good Control

BORRUSO, D. Operating characteristics of a Valley laboratory beater. Ind. carta (Milan) 10, no. 8-9: 87-92 (Aug.-Sept., 1956). [In Italian]; Bull. Inst. Paper Chem. 28: 16.

The measurement of Schopper-Riegler freeness is a simple and rapid method of controlling the beating process. It is used in industry in preference to more accurate but tedious methods. In a previous study it was demonstrated as representing an empirical measure of the increase in the specific surface area of the pulp fibers. Measurements of the drainage characteristics, supplemented by observations in an ordinary light or phase-contrast microscope, are sufficiently accurate to determine the specific surface area of the fibers. In the present study, the operating characteristics of a Valley beater were tested by this method, using commercial sulfite and kraft pulps, both bleached and unbleached. It is concluded that a good control of the beating process may be obtained. By varying the load on the beater plate, the optimum load for each kind of material tested may be determined. J.S.

Waste Paper Processing Plants . . .

BRECHT, WALTER, KERN, THEODOR, and LENTZE, MAX. Technological comparison between old and modern waste-paper-processing plants. Das Papier 11, no. 13/14: 274-80 (July, 1957). [In German; English and French summaries] Bull. Inst. Paper Chem. 28: 96.

Five old (dry-process) and five modern (wet-process) installations for making wrapping paper from waste paper were compared from the technological and economic points of view. Although there were differences among the five plants of each group, the classical systems could be characterized by the use of kollergangs and hollanders (prior to sand catchers and knot catchers), whereas the wet systems generally used modern pulpers, centrifugal cleaners, and refiners (plus vibratory screens, thickeners, and knot catchers) ahead of the paper machine. Advantages of the wet process include much lower personnel and space requirements, better dewatering of the stock, and greater stiffness of the paper (despite lower density). Disadvantages are the higher specific-energy consumption and the lower pulp disintegration, as shown by the presence of more but smaller shives or slivers. Classical systems are, nevertheless, more economical for daily outputs up to 20 tons, whereas modern systems are more economical for processing over 40 tons daily. The economy of modern *vs.* classical systems for daily outputs of 20-40 tons depends on the specific mill conditions and must be decided individually. 2 tables, 10 figures, and 1 reference. L.E.W.

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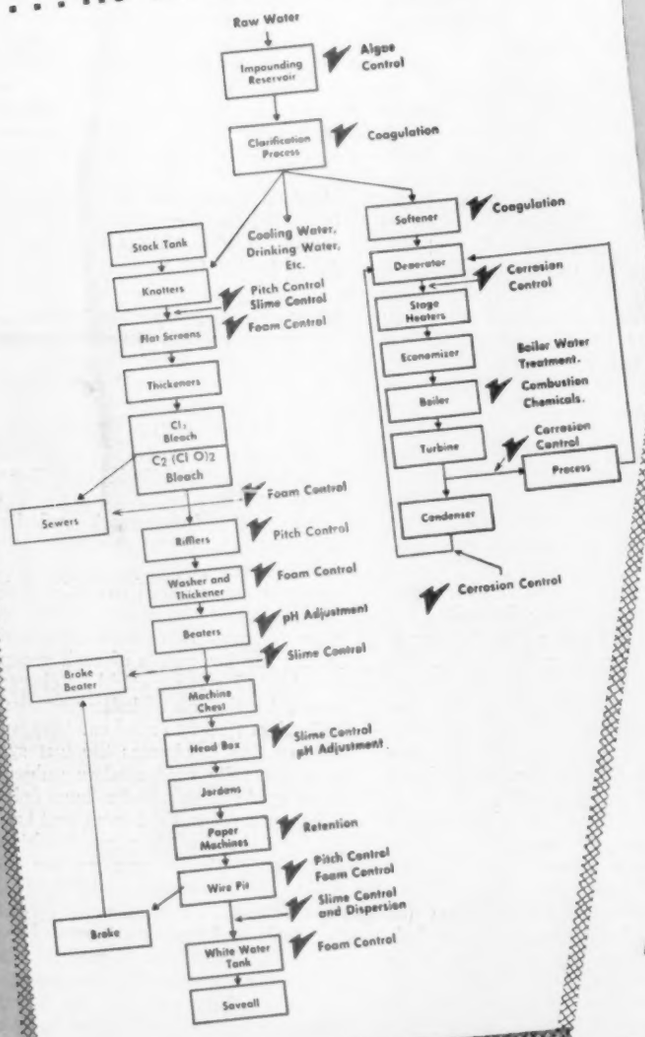

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CORROSION CONTROL
Nalco 19 · Nalco 35 · Nalco 353 · Nalco 918

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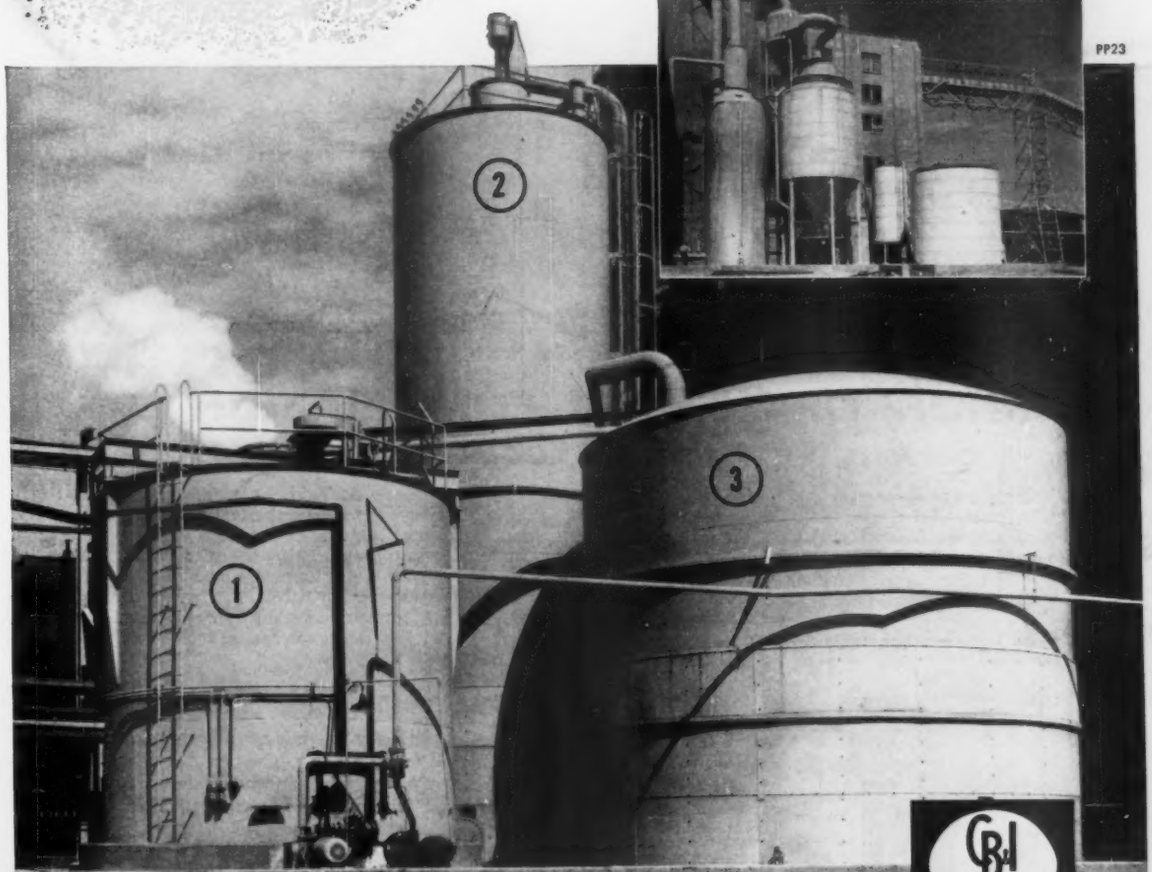
Cone-bottom blow tank equipped with cyclone separator; two liquor measuring tanks and 26-ft. liquor storage tank. All fabricated and erected by CB&I.

PP23



Some of the CB&I structures at this Mead mill include:
(1) 24-ft. diameter caustic liquor storage tank
(2) 15-ft. diameter by 50-foot high foam tank
(3) 26-ft. diameter black liquor storage tank

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JACK B. RINCKHOFF (right), Chief Engineer, Sulphuric Acid & Phosphates Dept., Chemical Construction Corp., N. Y. City. Left, Michael De Piano, New York Cooper Alloy Representative.

RINCKHOFF OF CHEMICAL CONSTRUCTION

answers 3 questions on Cooper Alloy Valves

Q. Mr. Rinckhoff, in specifying equipment for the H_2SO_4 plants that Chemico constructs around the world, what Cooper Alloy valve models do you buy most of?

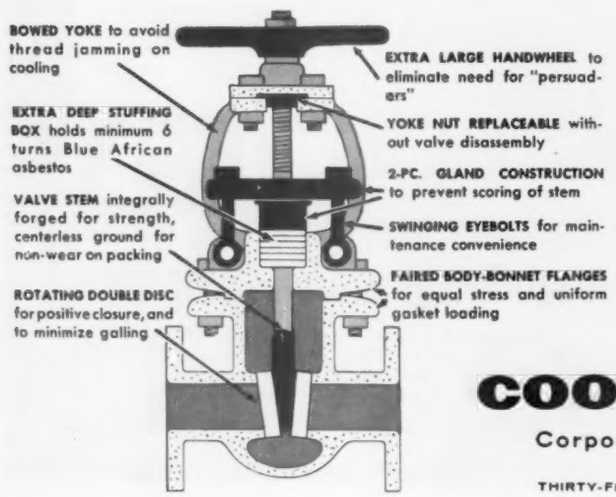
A. Over 80%, I'd say, are OS&Y type gate valves, in sizes 1"to 8"

Q. What's your most important reason for buying Cooper Alloy valves?

A. Availability. Your chain of distributors across the country and in remote parts of the world is of great importance to us. In foreign construction we have often specified Cooper Alloy because of this all-important availability.

Q. What about design and quality?

A. Vital. Valve design determines performance, and our specifications are rigid. As a construction company, we can't afford to jeopardize our reputation by installing questionable equipment. Cooper Alloy valves have passed our tough specs, and have my approval for all severe construction applications.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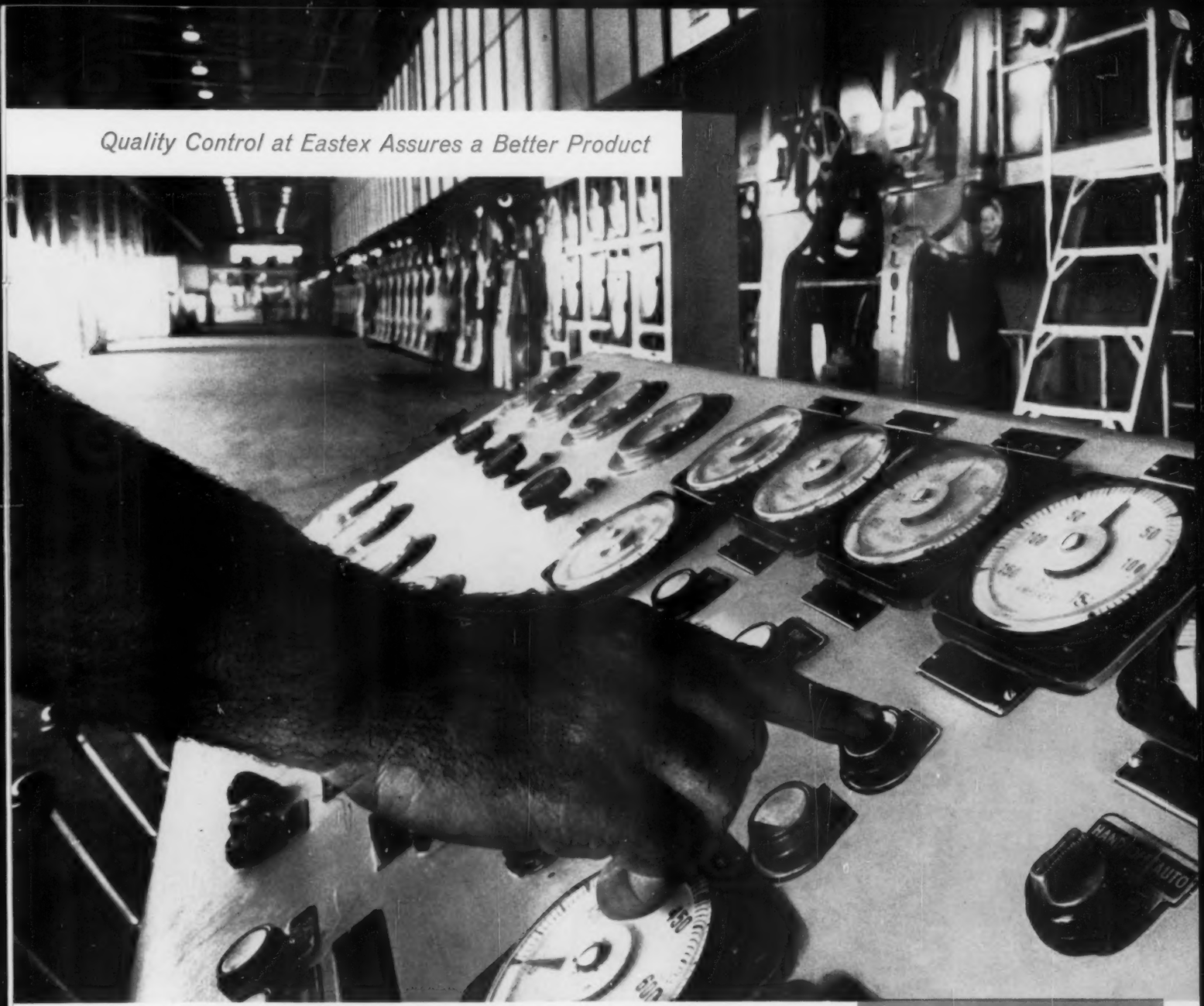

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Bleached converting Fourdrinier board grades for: paraffined cartons, frozen-food containers, pails, plates, trays, liquid-tight containers, cold- and hot-drink cups, milk-bottle hoods, and many other miscellaneous grades

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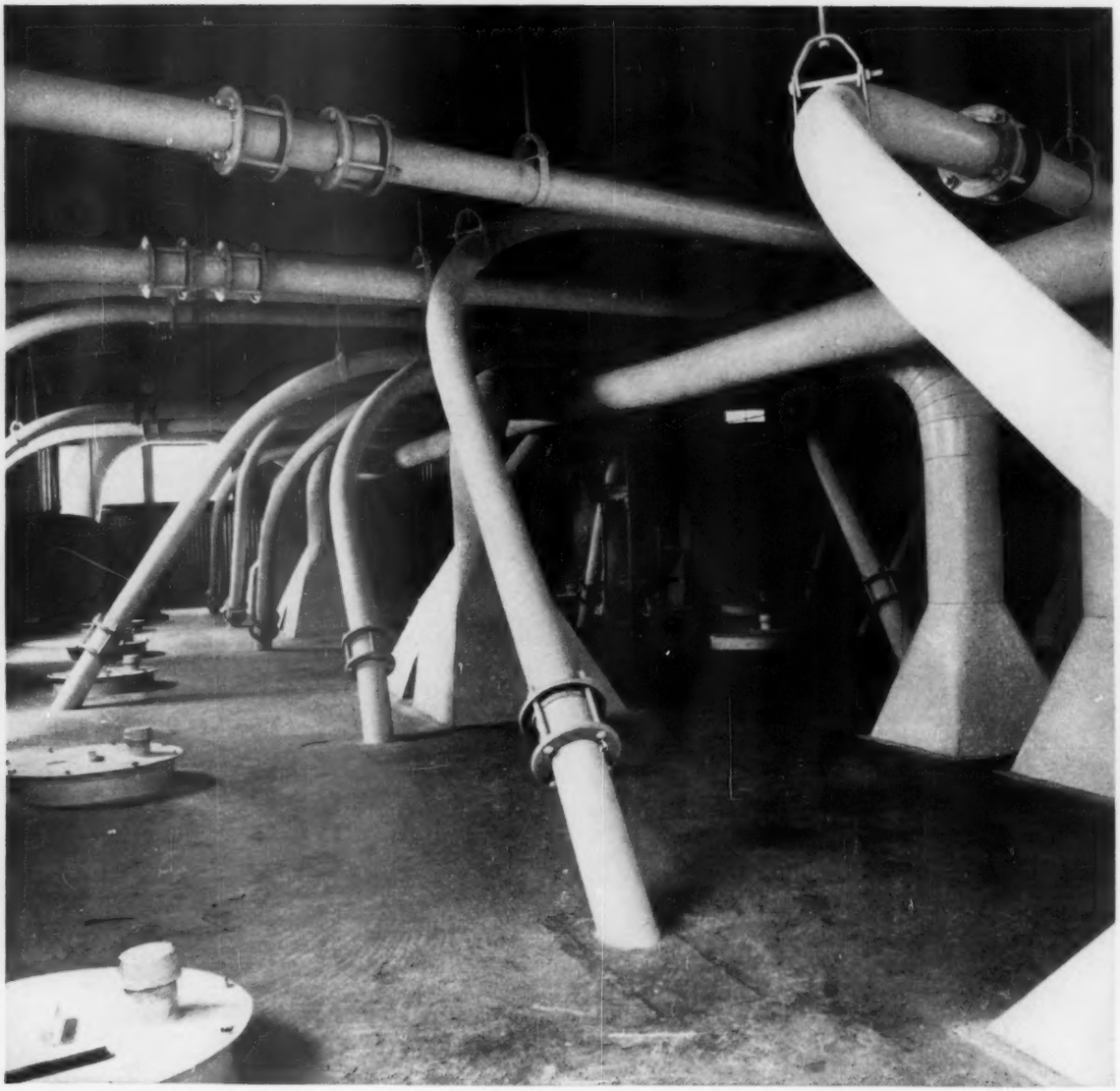

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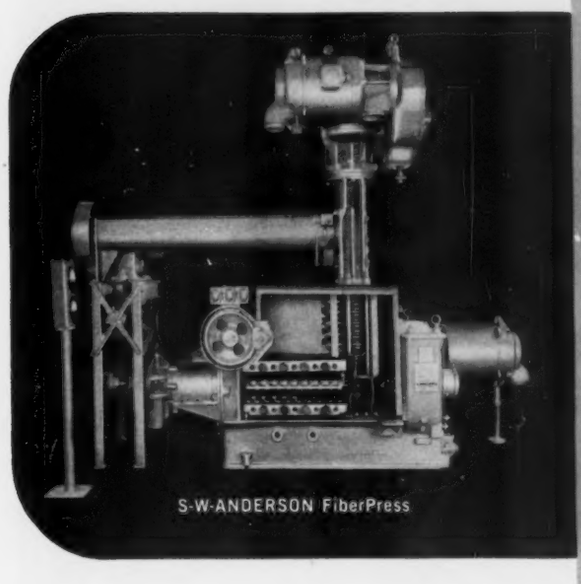
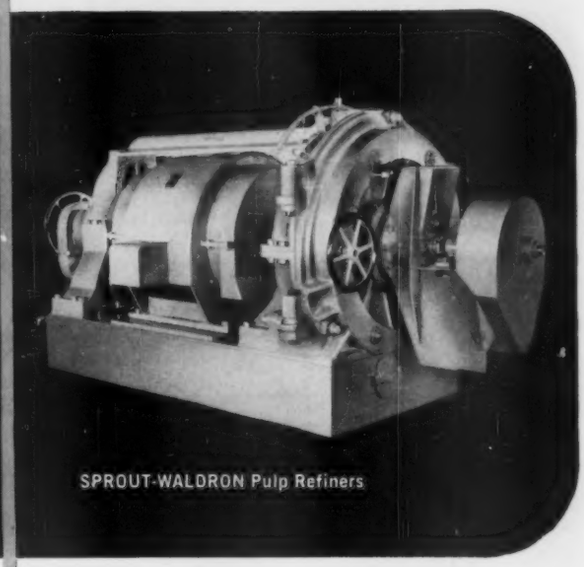
TO REMOVE DISSOLVED SOLIDS
TO FIBERIZE SEMI-CHEMICAL CHIPS



S-W-ANDERSON FiberPress



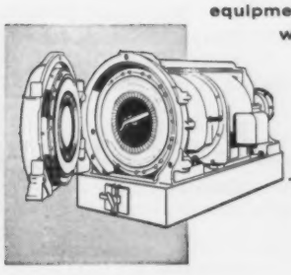
SPROUT-WALDRON Pulp Refiners

New Combination PAYS 8 Ways

1. More complete removal of black liquor and dissolved solids from semi-chemically cooked chips in the two pressing stages of the FiberPress.
2. More complete fiberizing due to the special FiberPress method of transferring fiber from the vertical to the horizontal pressing stages in the FiberPress.
3. Reduces refining power requirements as much as 40% because of the pre-refining action of the FiberPress.
4. Provides strong, clean pulp for bleached or unbleached paper and paperboard.
5. At least 10% higher production capacity with the same horsepower input.
6. No charring of chips or fiber occurs when the press is shut down.
7. Simple control of pressing without danger of plugging by the patented choke-jaw design.
8. Increased wire and felt life due to black liquor removal.

The FiberPress can be installed ahead of your present refining equipment as well as with Sprout-Waldron Pulp Refiners. For full details, write to Sprout, Waldron & Co., Inc., 32 Logan St., Muncy, Penna.

S W

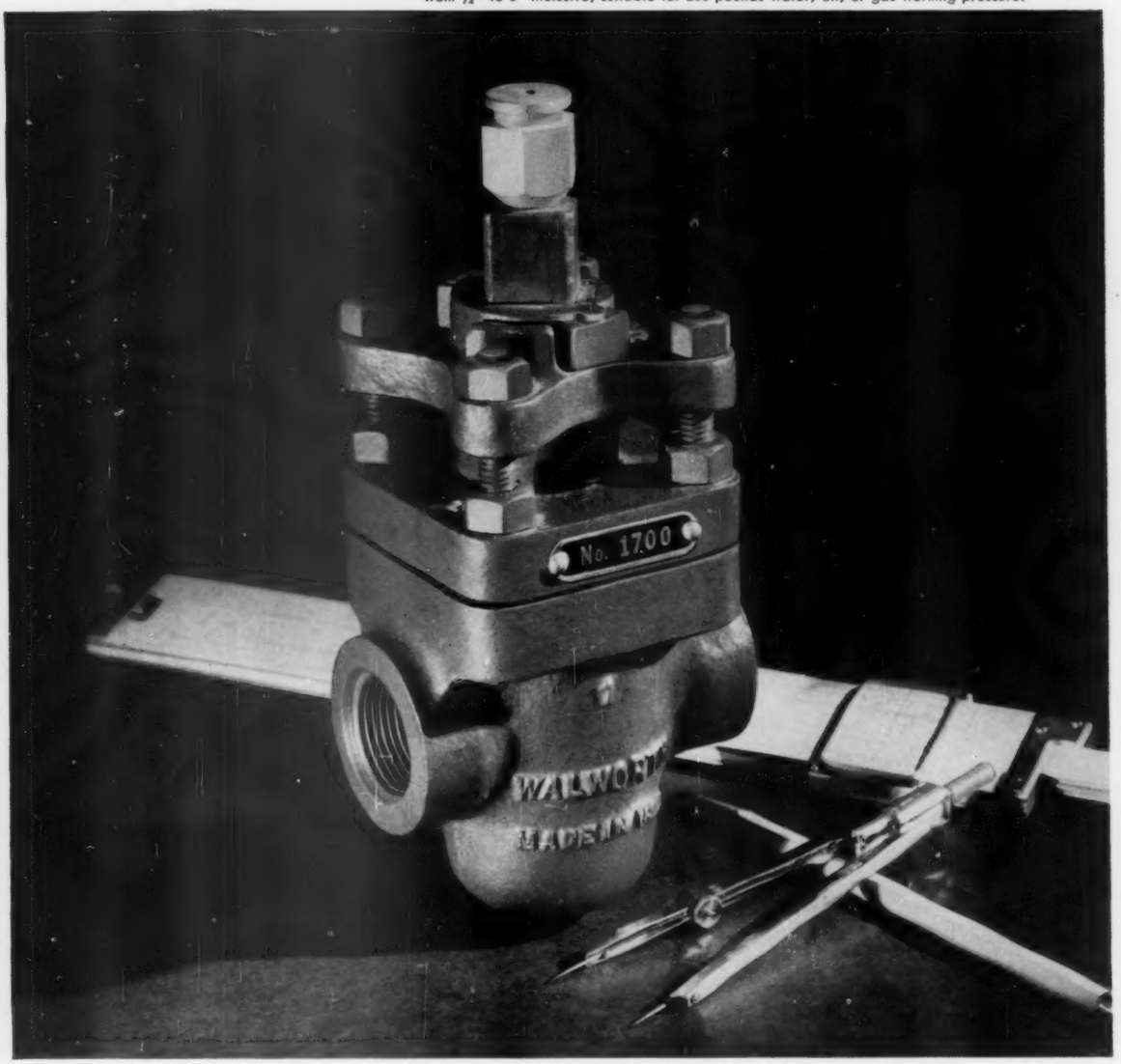


SPROUT-WALDRON

MODERN PULP PRODUCTION EQUIPMENT

PP/812

Illustrated here is the Walworth Lubricated Plug Valve No. 1700, available in sizes from ½" to 5" inclusive, suitable for 200 pounds water, oil, or gas working pressure.



problem-solvers for tough jobs

*LPV's by WALWORTH

If you're familiar with the basic advant ges of Plug Valves, you know why Walworth Lubricated Plug Valves work so well in really tough spots. You know about their direct port opening . . . their dead tight shut off. Seating and sealing surfaces are fully protected from attack by fluids being handled by insoluble lubricants.

*Lubricated Plug Valves

Remember, you can get Walworth LPV's in all sizes . . . from ½ to 30 inches . . . for pressures up to 5000 psi and for vacuum service . . . in a number of different styles and patterns. For more information about LPV's and for your copy of the new Walworth LPV Circular, see your local Walworth Distributor.

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WHICH sodium silicate suits your process best?

Opalescent Solutions

Baumé	Wt. Ratio (Na_2O to SiO_2)
38° Pearl	1:3.25
40° Regular	1:3.25
41° Acme	1:3.25
42.5° Ajax	1:3.25
47° Ideal	1:2.84
52°	1:2.40
60°	1:2.00

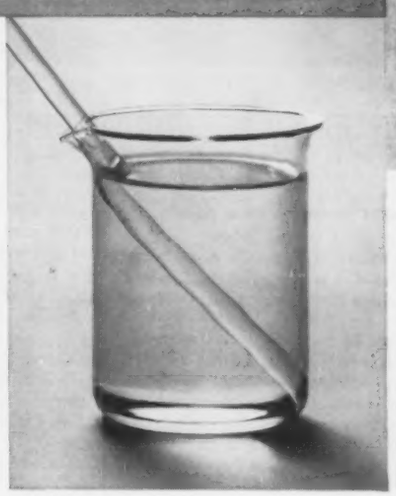
And other ranges of Baumés

Glass: Block form

Clear Solutions

Baumé	Wt. Ratio (Na_2O to SiO_2)
38° Crown	1:3.25
38° Gem	1:2.54
40° Peak	1:3.22
41° Water White	1:3.25
42° Silk	1:2.54
42.5° Water White	1:3.25
44° Perox	1:1.80
52° Zenith	1:2.40

And other ranges of Baumés



***Also*—Sodium Metasilicate**
Crystal and Anhydrous
for Detergents and Heavy Duty Cleaning Uses

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For any grade and any strength you need, see General Chemical! Solutions are supplied ready to use. No elaborate mixing equipment necessary. Special grades prepared to your specifications.

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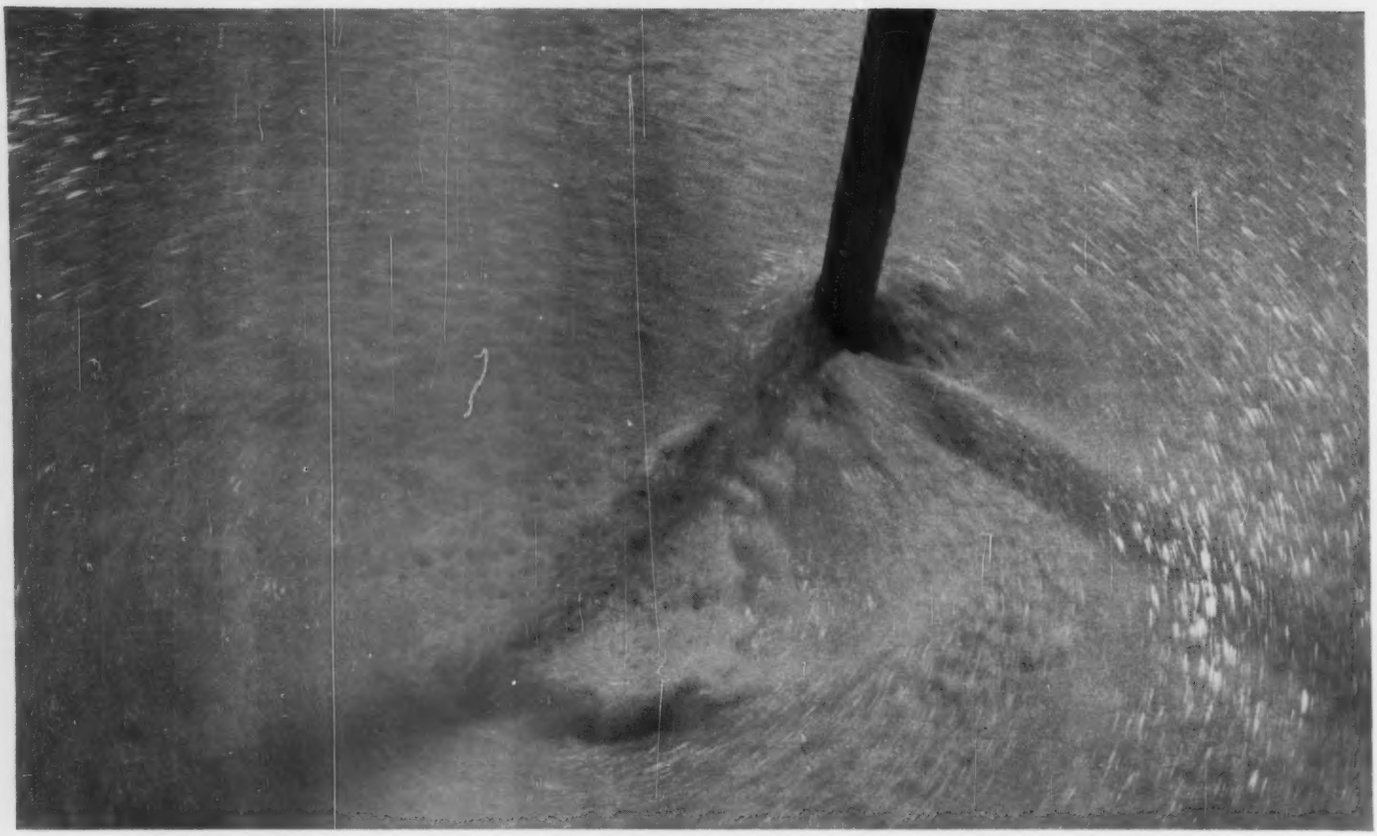
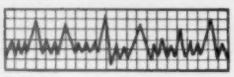


How to change  *to*

There's a new way to get the uniformity you want out of a stock chest.

It's called *custom power* mixing.

With it, you can bring 3 tons (fiber weight) of 3½% stock to complete uniformity in 10 minutes.

You can forget about stratification in a chest 48 feet across, filled with 37 feet of 5% sulfite.

Or you can evenly adjust the color of 4% stock in a beater chest or machine chest—*in one minute.* Figure out what this can save you in paper machine downtime.

Most important, you can iron out the minute-by-minute ups and downs in consistency—the constant adjusting and correcting—that rob your stock system of its efficiency and make uniform paper quality so hard to achieve.

Equates power to your need

You get custom power mixing with a LIGHTNIN Mixer. You get the *exact power level* you need to accomplish the job you want done in a given chest within a given time.

For example, let's say you want *complete uniformity.* Notice, in the picture above, the smooth, swift turnover of stock—the absence of swirl or vortex. This stock is moving from top to bottom as it rotates. *All* the stock is in motion. Incoming stock disperses *instantly. Consistency varies less than 0.1% between any two points in the chest at any time.*

Suppose you want to keep only the bottom part of the chest uniform. Then your LIGHTNIN Mixer is selected to do just that. Stock passes steadily downward into the mixed zone—cannot stagnate. You can accurately predict the effluent consistency.

Mix chests of any size

Whatever level of stock mixing you need, you can get with a LIGHTNIN Mixer. Correct power for your chest is chosen scientifically from hundreds of standard power-speed combinations up to 500 HP. LIGHTNINS are giving good results on stock consistencies up to 6%, in chests as large as 48 feet diameter by 50 feet high. Results are *guaranteed.*

For quick, competent help on custom power mixing for your stock chests, call your LIGHTNIN Mixer representative (listed in Thomas' Register). Or write us today.

Lightnin® Mixers

MIXCO fluid mixing specialists

CROWN ZELLERBACH mixes 3 tons (dry weight) of 3½% stock to uniformity in 10 minutes in this unbaffled chest at Camas, Wash. Rapid blend is produced by 125-HP LIGHTNIN Mixer driving a four-blade propeller six feet in diameter.

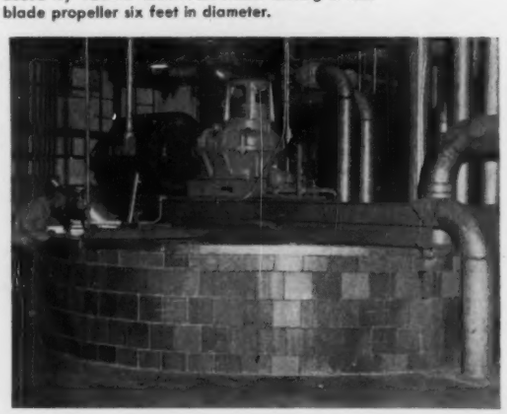
FOR LATEST MIXING INFORMATION and full description of LIGHTNIN Mixers, send for these helpful bulletins:

- ☐ Top or bottom entering; turbine, paddle, and propeller types: 1 to 500 HP (B-102)
- ☐ Top entering; propeller types: ¼ to 3 HP (B-103)
- ☐ Portable: ⅛ to 3 HP (B-108)
- ☐ Side entering: 1 to 25 HP (B-104)
- ☐ Laboratory and small-batch production types (B-112)
- ☐ Condensed catalog showing all types (B-109)
- ☐ Quick-change rotary mechanical seals for pressure and vacuum mixing (B-111)
- ☐ Paper stock mixing data sheet for figuring mixer requirements

Check, clip, and mail with your name, title, company address to:

MIXING EQUIPMENT Co., Inc., 141-n Mt. Read Blvd., Rochester 11, N.Y.

In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 10, Ont.



HUBER HYDRAFINE

a new fine particle size, high brightness clay.

HYDRAFINE's dependable uniformity results from Viscontrol®

In paper coating Hydrafine excels in developing high brightness and gloss. In boxboard coating Hydrafine develops maximum brightness and covering power at low coat weights.

A clay of extraordinary fineness, Huber HYDRAFINE is now spray-dried in the pre-dispersed form preferred by many manufacturers. It is also available in lump and pulverized form.

HYDRAFINE is produced by Huber's patented Viscontrol® process which eliminates viscosity fluctuations normally found in all kaolin crudes.

Specifications:

Particle Size	90-94% finer than 2 microns
G. E. Brightness	86-87%
Controlled low viscosity as in all other Huber coating clays	

J. M. HUBER CORPORATION, 100 PARK AVENUE, NEW YORK 17, N. Y.

HUBER

J. M. HUBER CORPORATION
100 Park Avenue, New York 17, N. Y.

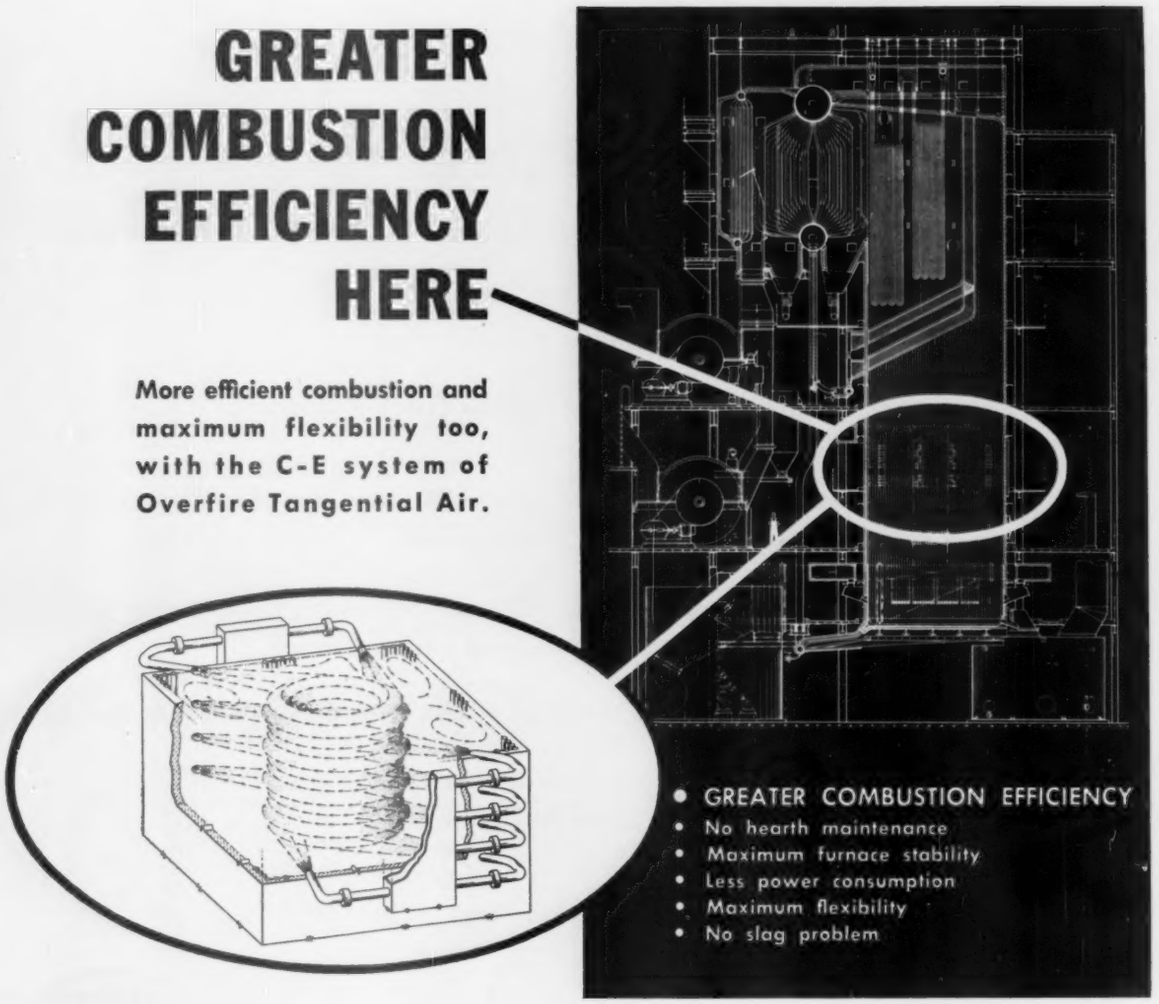
Please send samples of Huber HYDRAFINE as follows:

Spray-dried, pre-dispersed form ☐
Lump form ☐
Pulverized form ☐

Name_____ Title_____
Firm_____
Street, Number_____
Town_____

GREATER COMBUSTION EFFICIENCY HERE

More efficient combustion and maximum flexibility too, with the C-E system of Overfire Tangential Air.



The C-E Recovery Unit has greater combustion efficiency because of its Overfire Tangential Air System. By intimately mixing the fuel with an adequate supply of secondary air, combustion is completed more rapidly and effectively.

As illustrated above, secondary air is introduced into the furnace tangentially above the black liquor sprays. Thus the gas velocity upward through the sprays is decreased and ash entrainment in the gases leaving the furnace is reduced. The combustion process is completed in the lower part of the furnace, furnace exit gas temperature is reduced and slag build-up on the convection surfaces is reduced to a minimum.

This design feature is one result of Combustion's continuing efforts to make a good product better. Through the years, these efforts have produced many similar advantages. From the smallest to the world's largest, every C-E Recovery Unit offers you consistently high reduction performance, uniform fuel bed, no hearth maintenance, efficient burning, a cleaner boiler, uniform gas flow, less steam for soot blowing, cleaner superheater surface, less power consumption and minimum stack losses. Good reasons all, why — before you buy — you should *SEE* C-E.

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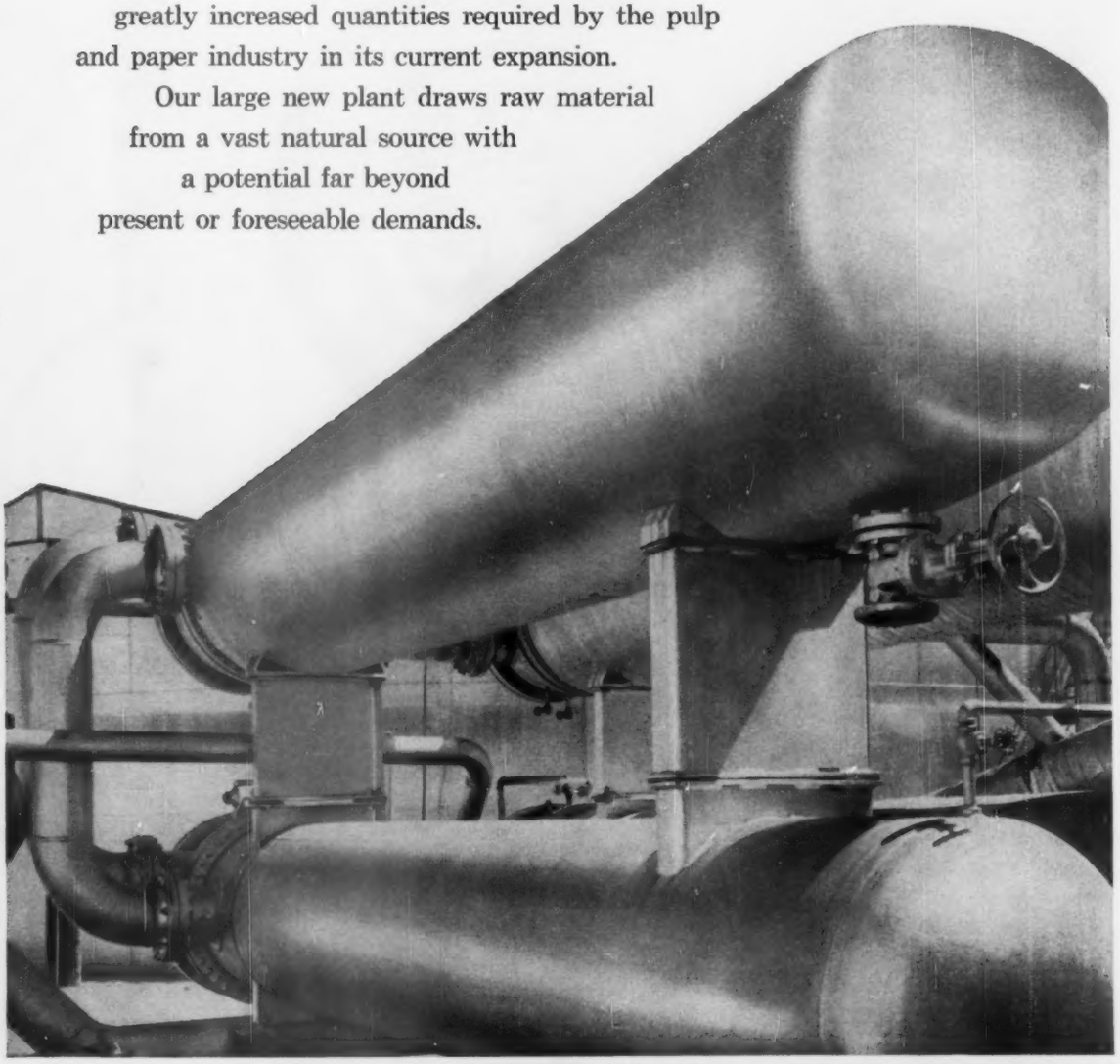
SALT CAKE is a primary West End product and we have the production capacity to meet your needs

At West End, salt cake is a prime product . . . not a by-product . . . and is being produced in the greatly increased quantities required by the pulp and paper industry in its current expansion.

Our large new plant draws raw material from a vast natural source with a potential far beyond present or foreseeable demands.



WEST END

West End Chemical Company

DIVISION OF STAUFFER CHEMICAL COMPANY

EXECUTIVE OFFICES, 1956 WEBSTER, OAKLAND 12, CALIF. • PLANT, WESTEND, CALIF.

SODA ASH • BORAX • SODIUM SULFATE • SALT CAKE • HYDRATED LIME

WHERE AIR MOVING REQUIRES AXIAL FLOW FANS, "BUFFALO" AXIALS HAVE MOST TO OFFER

Big jobs, like the one shown above . . . or smaller jobs, like the hood exhaust at lower left . . . "Buffalo" Axial Flow Fans take them all in stride.

The demand for "Buffalo" Axials is steadily increasing, because they offer so many superior advantages. Among these are extremely high efficiencies, quiet operation, built-in rigidity of construction and compact size. Ideal for straight-line duct connections, "Buffalo" Vaneaxial Fans eliminate the swirling motion of air by means of scientifically-engineered guide vanes. This energy is thus converted into useful forward thrust.

"Buffalo" Axial Flow Fans are the perfect solution to many plant space problems. Duct-size, they hug walls and ceilings, conserve productive space. They are doing an outstanding job in space-saving applications throughout industry, ranging from exhaust and ventilation to industrial air conditioning.

If your installation calls for axial flow fans, be sure they're "Buffalo" Axials. Contact your nearest "Buffalo" Engineering Representative, or write us today for Bulletin 3533-EF.

An important feature of *all* "Buffalo" Fans is the "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.

HOOD EXHAUST — Right in the Stack. Duct-size "Buffalo" Axial Flow Fans are economical to install — singly or in multiple — for in-stack exhaust applications utilizing a weather-protective hood. Installations such as this are popular in plants . . . wherever space is at a premium.

BUFFALO FORGE COMPANY

Buffalo, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT
EXHAUSTING • FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING

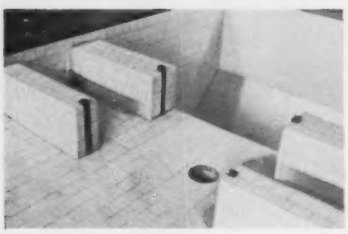
STEBBINS

Corrosion-Resistant

LININGS and TILE TANKS

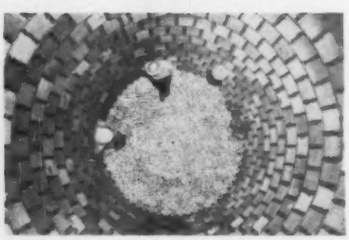
TILE LININGS

HEDTILE, highly resistant to corrosion, impact and abrasion, can be laid with full corrosion-resistant joint, then bonded to vessel. For chlorinators, reactors, towers, high-temperature tanks, etc. SEMPLATE is used for concrete or steel surfaces — tanks, pits, sewers, flumes, etc.



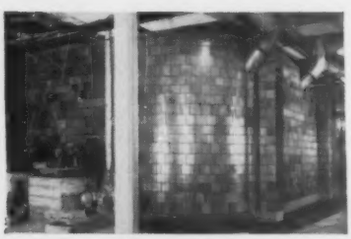
WHITE TILE LININGS

Specially developed for low-temperature, mild-service conditions where clearances are small and maximum capacity must be retained. Neat, easy to keep clean. Special Swedish tile for heavy-duty service. For couch and wire pits, beaters, stock chests, dye becks, etc.



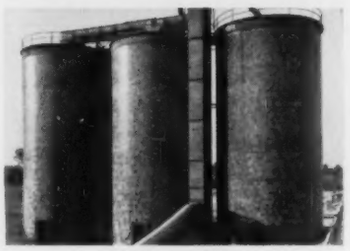
ACID BRICK LININGS

SEMCO and SEMAC Brick are used in vessels subject to severe corrosive effects. High chemical resistance plus superior thermal spall resistance. For digesters, acid accumulators, acid tanks, chlorine dioxide reactors, bleachers, blow pits and primary coolers. Carbon Brick, Fire Brick and Insulating Brick also used as required.



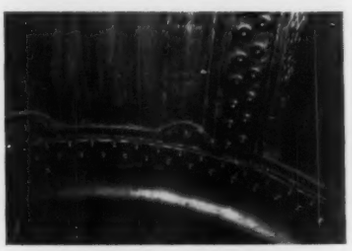
STOCK AND SLURRY TANKS

Stebbins storage tanks are, in effect, reinforced concrete faced inside and out with vitrified tile. Wide variety of contours and sizes. Walls are designed to carry the fully hydrostatic head in accordance with accepted concrete design. High-density storage tanks, machine chests, clay slurry chests, etc.



TILE SILOS

Silos for storage of dry solids are built of SEMTILE or SEMBLOK, or combinations of the two, depending upon the size, location and physical characteristics of the material. Material-handling equipment may be carried on the reinforced tile structure.



MEMBRANE LININGS

Stebbins installs membrane linings, protected by tile or brick, to meet special chemical conditions beyond the protective limits of the brick or tile itself. Complete shop facilities and field crews are available for application of a complete range of sheet and liquid membrane materials.

SINCE 1884
Specialists in
Design
Installation
and Servicing
of Linings and
Tile Tanks

SEMCO

STEBBINS Engineering and Manufacturing Company

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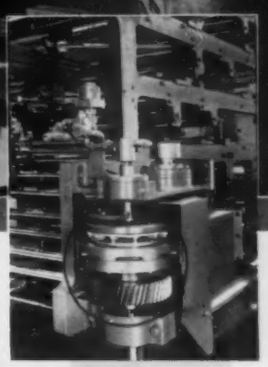
STEBBINS ENGINEERING CORP. — TOWER BLDG., SEATTLE, WASH

CANADIAN STEBBINS ENGR & MFG. CO., LTD. — TOWN OF MOUNT ROYAL, MONTREAL 9, CANADA

"MORE EFFICIENT OPERATION . . . LOW COST INSTALLATION . . . LESS MAINTENANCE . . ."

States Engineering Dept., R. Hoe & Co., Inc., New York



Pictured above is a huge new multi-color Rotagravure Printing Press built by R. Hoe and Company on which WICHITA Clutches are used. Previously, electro-magnetic clutches were used requiring explosive-proof housings, special wiring, etc.

When clutch changes were planned by Hoe Engineers, WICHITA was specified, because of their "MORE EFFICIENT OPERATION, LOW COST INSTALLATION, AND LESS MAINTENANCE." This is one more example of how and why WICHITA Clutches are being specified and used on modern equipment.

Far Right: This Wichita Clutch is mounted on a vertical shaft in the drive for the pulling rollers at the folder on the Hoe Press.

Near Right: Here a Wichita Clutch is shown on the steam drum drive of the Hoe Press.

For starting, stopping, or controlling tension, check with your nearest WICHITA engineer!

Brehm-Lahner, Inc., Detroit, Mich.
L. H. Fremont, Cincinnati, Ohio
W. G. Kerr Company, Pittsburgh, Pa.
Smith-Keser & Co., Avon, Conn.
Philadelphia 44, Pa., & New York, N. Y.
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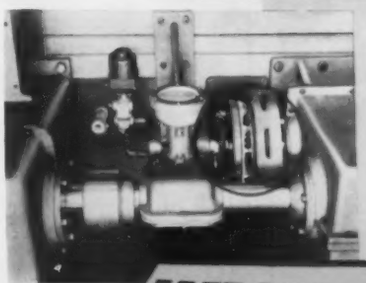
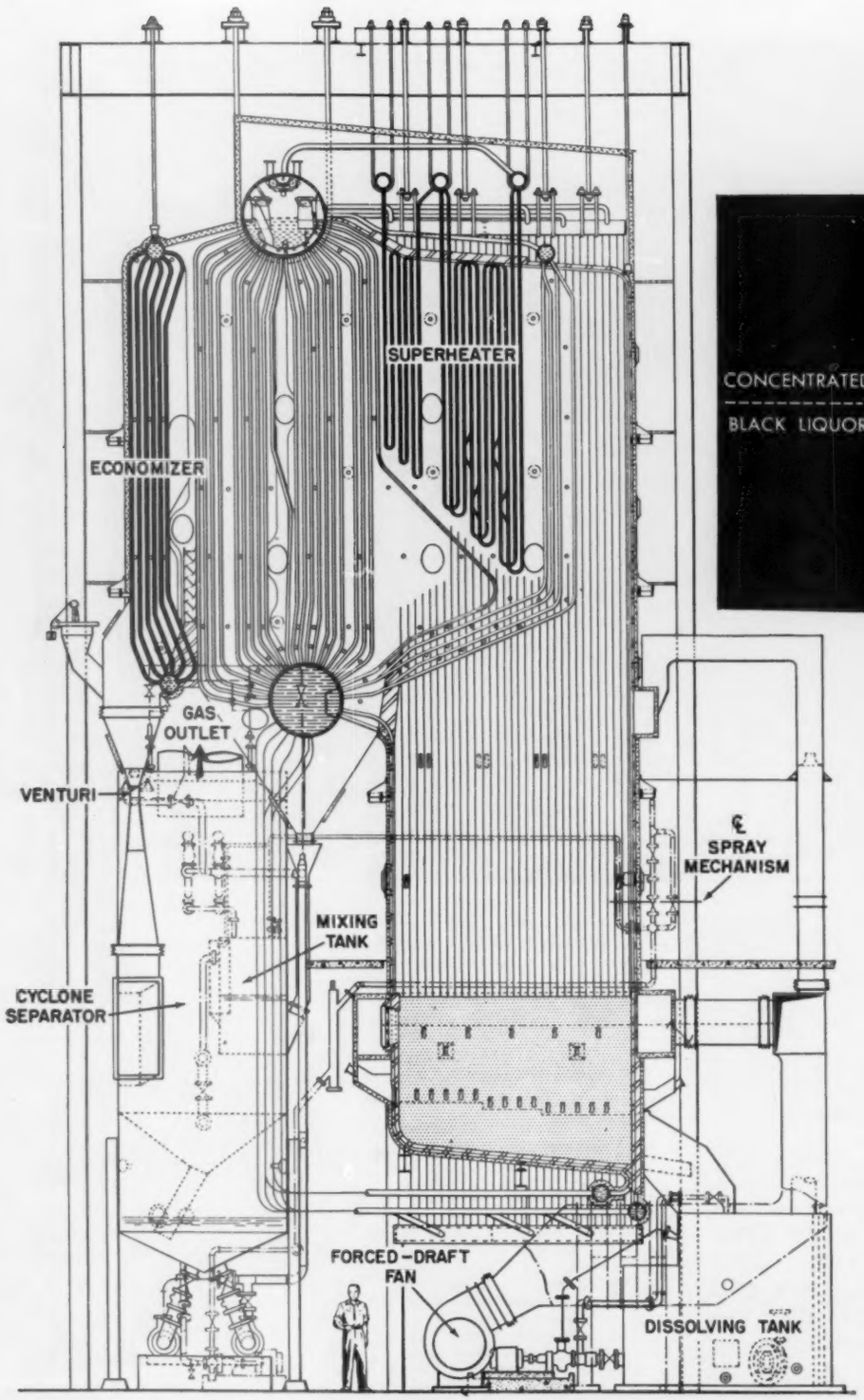
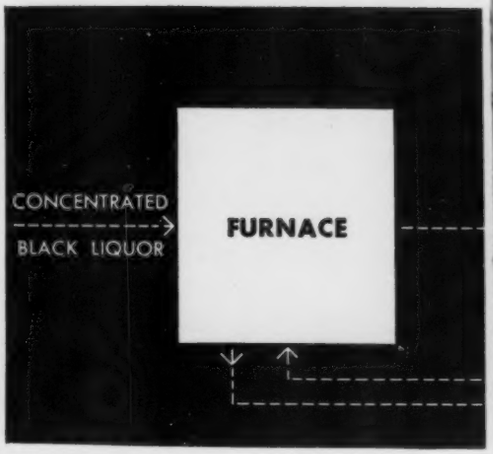
Dominion Power Press Equipment Ltd., Burlington, Ontario, Canada



WICHITA Clutch COMPANY, INC.
WICHITA FALLS, TEXAS, U.S.A.

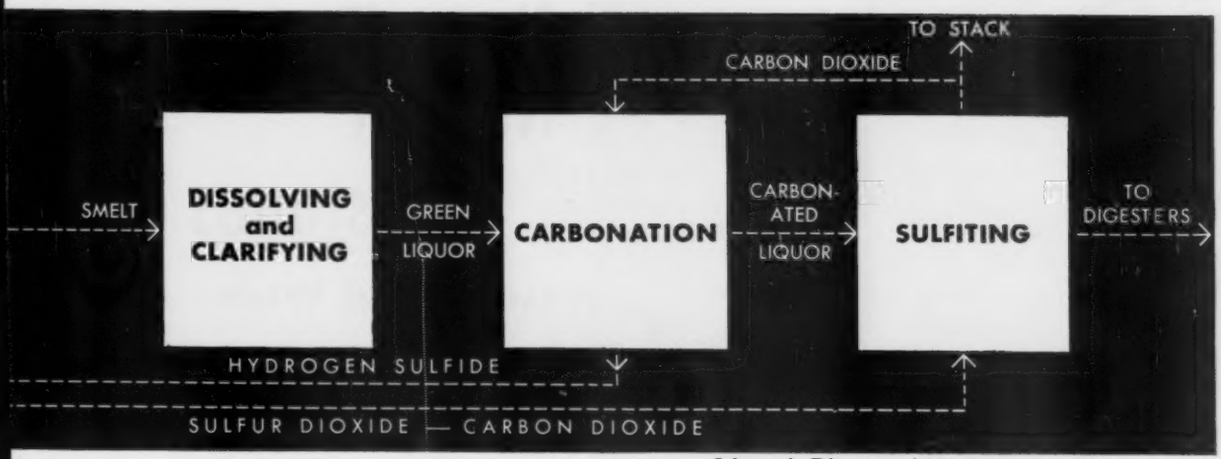


VENTURI EVAPORATOR - SCRUBBER LICENSED FROM PEASE, ANTHONY EQUIPMENT CO.



Another

This B&W Recovery Unit Boiler for neutral sodium sulfite pulping is capable of processing the waste liquor resulting from the production of 250 tons of NSSC pulp per day.



Schematic Diagram of Mead Recovery Process as used in B&W complete Neutral Sulfite Recovery System.

B&W Contribution to Chemical Recovery in Pulping

COMPLETE NEUTRAL SULFITE RECOVERY SYSTEMS

B&W now introduces to the pulping industry a *complete* Neutral Sulfite Semi-Chemical Recovery System. The first of these fully integrated systems is in operation and a second is currently under construction.

The neutral sulfite semi-chemical recovery process was developed by the Mead Corporation with the cooperation of B&W. Neutral sulfite liquor has been burned in B&W Recovery Units in previous installations, but now, utilizing the recently patented Mead Recovery Process, B&W offers a complete Neutral Sulfite Recovery System.

In the Mead Recovery Process, spent black liquor, removed from pulp, is concentrated in evaporators and burned in a kraft-type recovery furnace. The smelt produced is dissolved to form green liquor, which is processed in carbonation towers to liberate hydrogen sulfide from sodium sulfide in the green liquor. The sodium sulfide is thus converted into sodium carbonate and sodium bicarbonate. Hydrogen sulfide is returned to the furnace and burned to sulfur dioxide, which is absorbed by the carbonated liquor in a sulfiting tower. The liquor leaving the sulfiting tower is delivered to digesters for cooking purposes.

For information about the Mead Recovery Process and B&W complete Neutral Sulfite Recovery Systems write for Bulletin BR 665. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

P-810

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BOILER DIVISION

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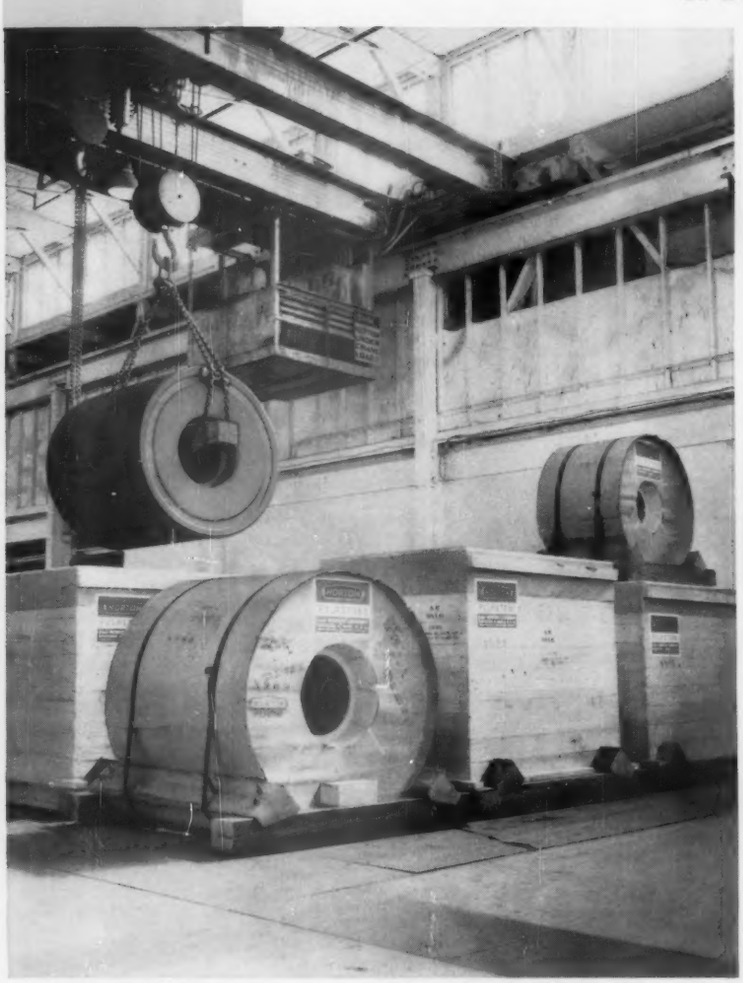
Norton Pulpstones

Go World Wide



A corner of the shipping room at the Norton Worcester plant showing stones crated for domestic shipment and boxed for export.

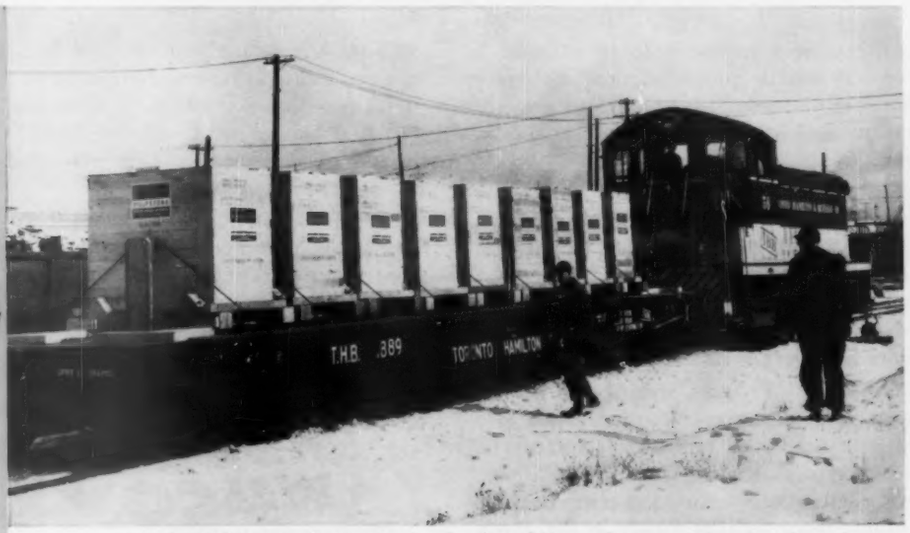
FROM the Norton plant at Worcester and from Norton Company of Canada's plant at Hamilton, Ontario hundreds of pulpstones go out each year to meet the world's requirements for mechanical pulp. Each plant has complete facilities for pulpstone manufacture, assuring you two reliable sources of supply in case of emergency.

Norton pulpstone engineers, each with practical paper mill experience, are available the world over to specify the correct pulpstones to meet your particular requirements and to render technical service.

NORTON COMPANY, WORCESTER 6, MASS.
Norton Company of Canada, Ltd., Hamilton, Ont.

EXPORT: Norton Behr-Manning Overseas Inc., Worcester, Mass.

NORTON
PULPSTONES



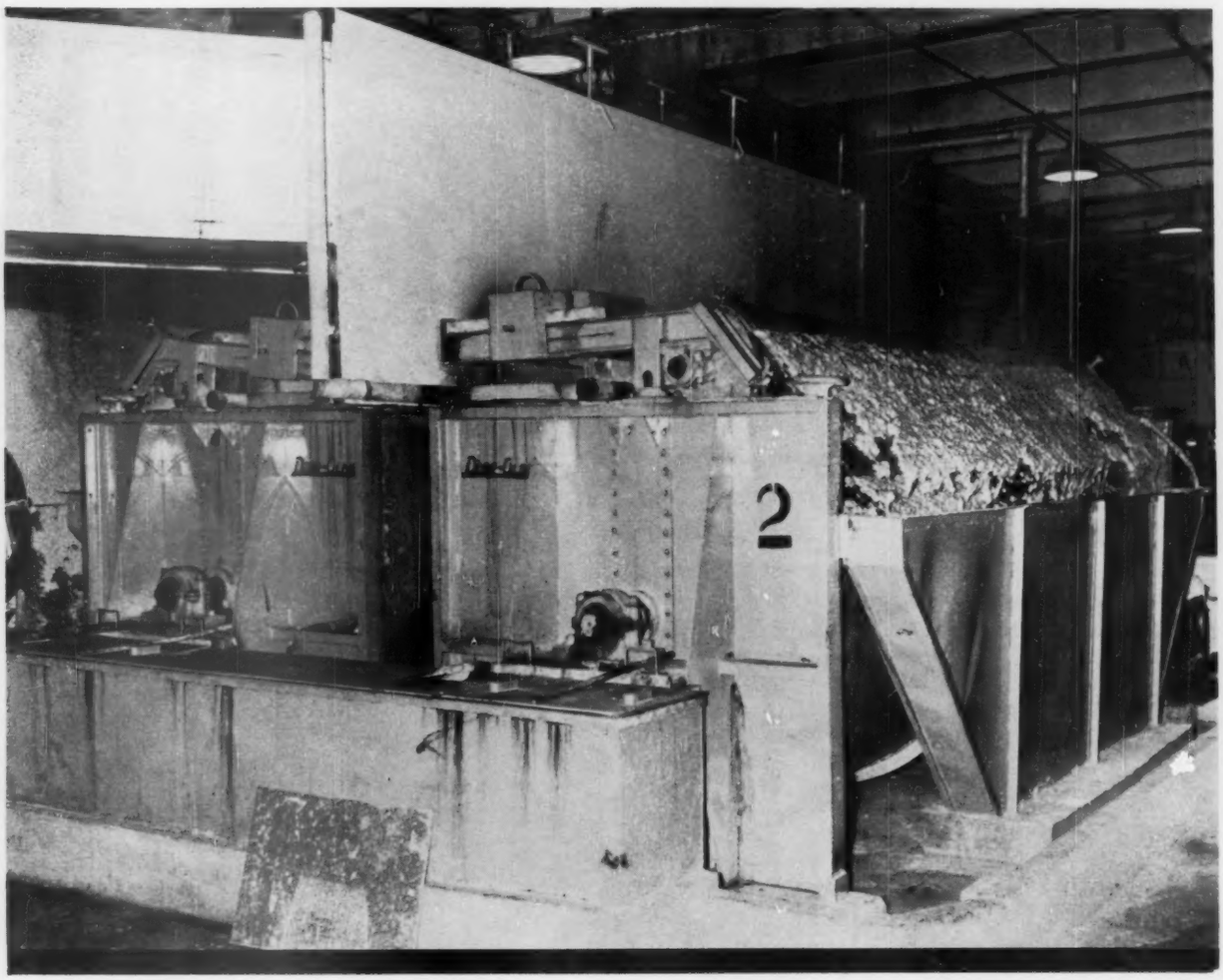
A carload of Norton pulpstones leaving the plant of Norton Company of Canada, Ltd. at Hamilton, Ontario.

PUGET PULP IS CLEAN

PUGET SOUND PULP and TIMBER CO.
BELLINGHAM • WASHINGTON

Two Oliver Gravity Deckers double stock capacity and reduce white water consistency

. . . at Diamond Match Company
Ogdensburg, New York

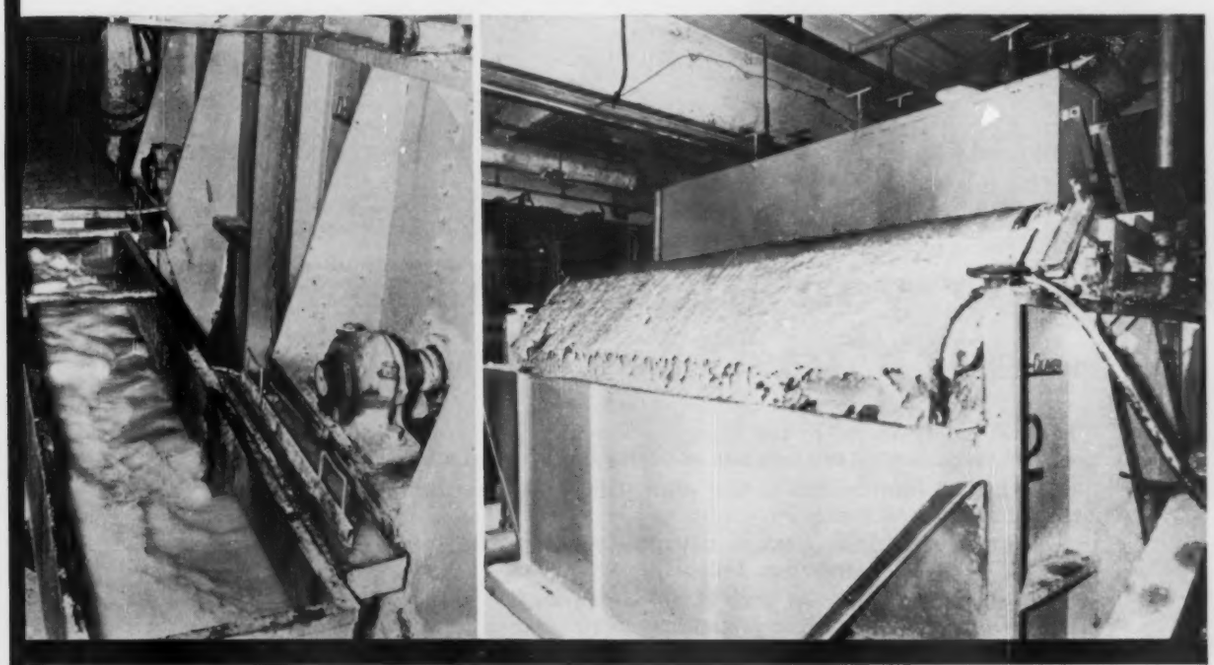


View of two Oliver Gravity Deckers, each 4′ in dia. x 13′ face at Diamond Match Company, Ogdensburg, New York.

Prior to June 1957, the Diamond Match Company at Ogdensburg, New York, was utilizing five units for deckering approximately 80 TPD of conventional softwood groundwood. In May 1957, one of the two Oliver Gravity Deckers shown in the above photograph replaced all five of the smaller existing units and reduced the white water consistency. When both of the new Deckers are operating at full capacity the stock output in this totally closed system can be increased to 140 TPD.

Evaluation tests on the groundwood white water were conducted by the Diamond Match Company before and after the two Oliver Deckers were installed. The comparative results revealed the new Decker system had not only reduced the white water consistency from .093 to .082, but it also reduced the percentage of intermediate fibers (30, 50, & 100 mesh retainings) from 26.4% to 12.2%. These tests further revealed that the long fibers (14 mesh retained) were eliminated from the white water.

The new Oliver Decker installation at the Diamond Match Company is an excellent example of Dorr-Oliver's ability to provide equipment to fit the job. For more information on the complete line of Dorr-Oliver equipment for the pulp and paper industry, write Dorr-Oliver Incorporated, Barry Place, Stamford, Connecticut. Or better still let us send an engineer to discuss your equipment problem with you, placing at your disposal 35 years of D-O's filtration experience. No obligation, of course.



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The great safety record of the Chemical Industry is inspiring proof that chemical users, as well, can institute and carry out effective safety programs.

As a helpful contribution to this effort, Olin Mathieson has prepared a series of safety wall charts on . . .

CHLORINE • LIQUID CAUSTIC • SULFURIC ACID
ANHYDROUS AMMONIA • NITRIC ACID

These wall charts will keep your employees constantly posted on correct handling procedures, on basic precautions to be observed, and on first aid methods when emergencies *do* occur.

We will gladly send you the safety charts you need without obligation.

MATHIESON CHEMICALS
OLIN MATHIESON CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS DIVISION • BALTIMORE 3, MD.

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Ammonia • Bicarbonate of Soda • Carbon Dioxide • Caustic Potash • Caustic Soda • Chlorine • Ethylene Diamine • Formaldehyde
Hexamine • Hydrazine and Derivatives • Hypochlorite Products • Methanol • Muriatic Acid • Nitrate of Soda • Nitric Acid
Polyamines • Soda Ash • Sodium Chlorite Products • Sodium Methylate • Sulfate of Alumina • Sulfur (Processed) • Sulfuric Acid

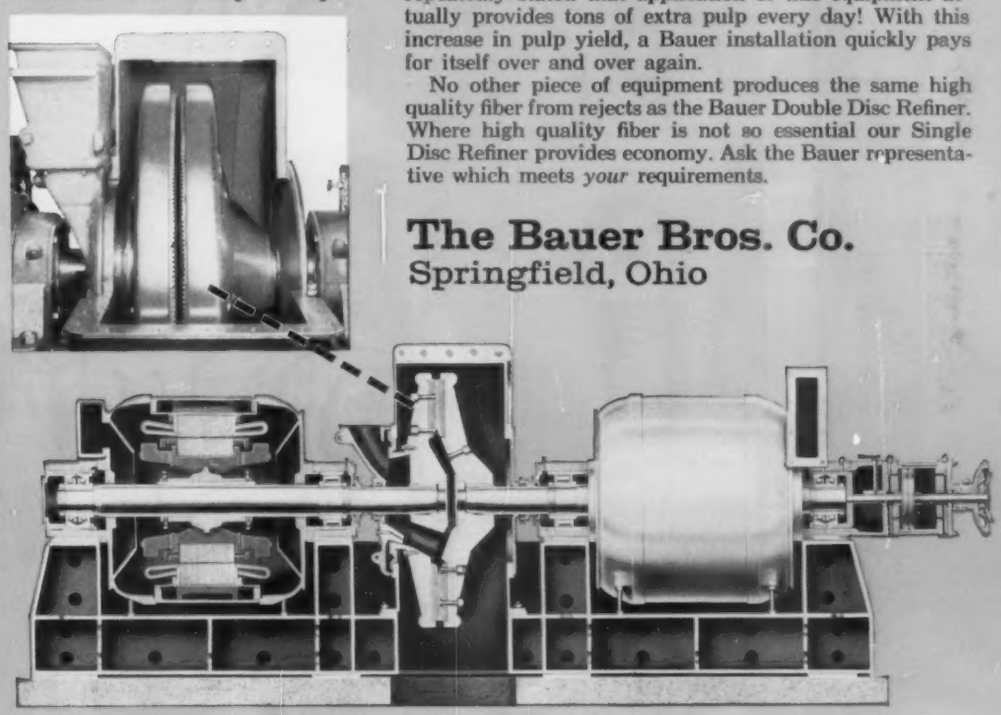
Are you getting all you can from your screen rejects?

It's no secret that mills are anxious to salvage screen rejects. The catch is how to do it most efficiently—how to get the best fiber qualities from apparent waste. The answer is supplied by the Bauer Double Revolving Disc Refiner shown below.

Pulp from these refiners is long fibered, uniform and of high quality. Since the first Bauer Double Disc Refiner was put into operation on screenings in 1928, users have repeatedly stated that application of this equipment actually provides tons of extra pulp every day! With this increase in pulp yield, a Bauer installation quickly pays for itself over and over again.

No other piece of equipment produces the same high quality fiber from rejects as the Bauer Double Disc Refiner. Where high quality fiber is not so essential our Single Disc Refiner provides economy. Ask the Bauer representative which meets *your* requirements.

BAUER DOUBLE DISC REFINER. The high differential speed of two revolving discs provides fiberizing action at its best, separating fiber bundles but maintaining fiber length.



The Bauer Bros. Co.
Springfield, Ohio

THE BAUER BROS. CO.
1706 SHERIDAN AVE., SPRINGFIELD, OHIO

☐ Send me data on the Double Disc Refiner.
☐ Have a Bauer representative see me about screen rejects.

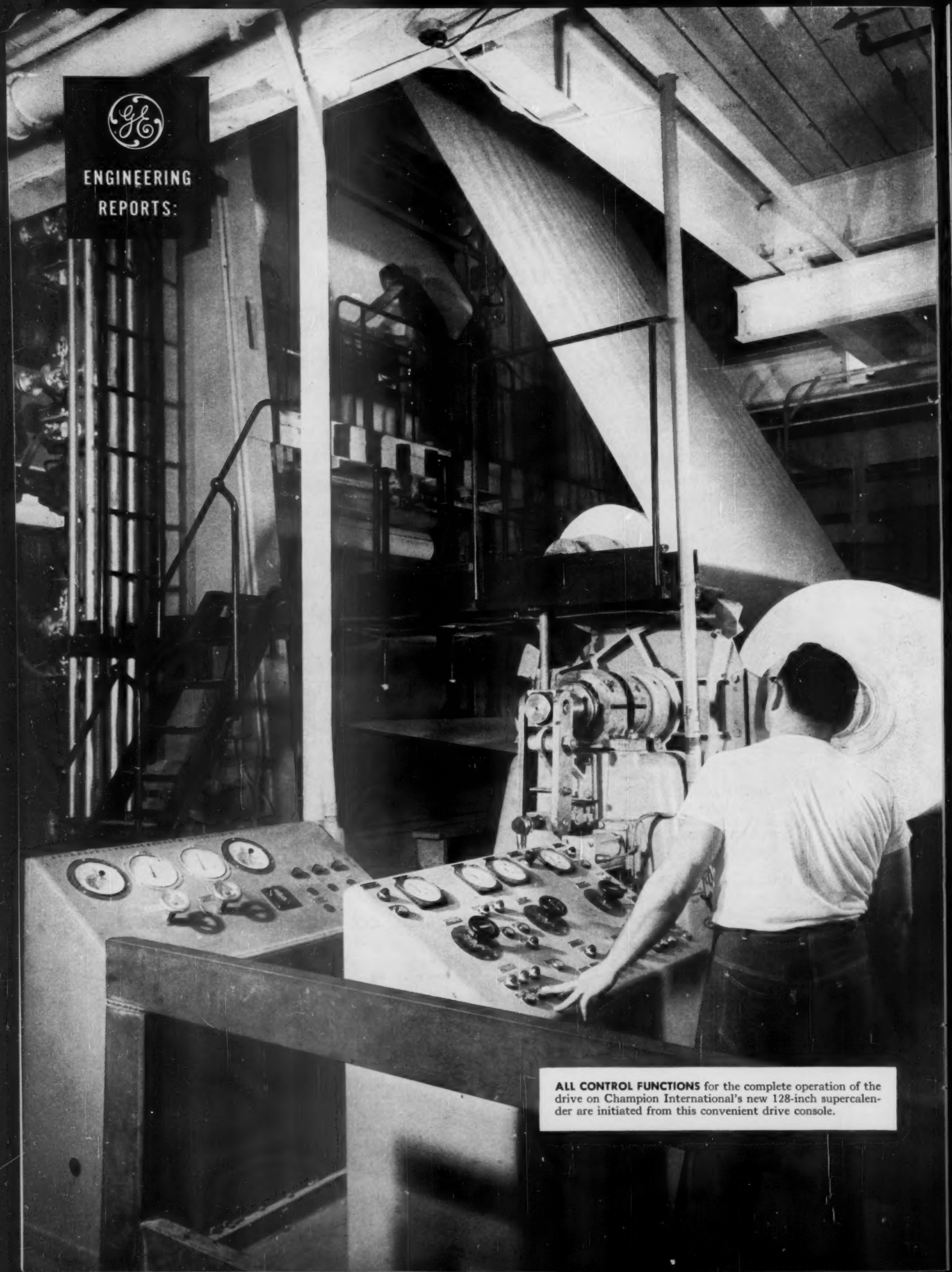
NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

Bauer



ALL CONTROL FUNCTIONS for the complete operation of the drive on Champion International's new 128-inch supercalender are initiated from this convenient drive console.

At Champion International's Lawrence, Mass., mill . . .

General Electric drive systems provide improved tension control at all speeds

Electrically regulated supercalender drive features automatic inertia compensation—reduces paper breaks

Producing high quality coated book stock, at more than 1500 feet per minute, C-I's new supercalender drive installed at its Lawrence, Mass., mill features automatic inertia compensation on the wind-up and unwind stands, accurate speed regulation, and fast, safe emergency stops—major advances in papermaking.

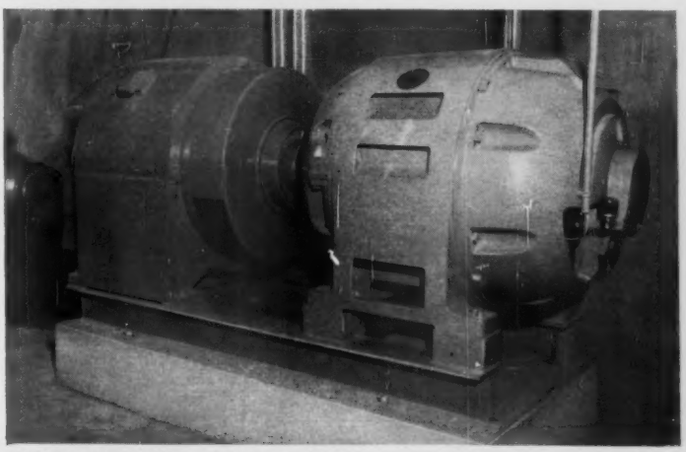
According to General Electric engineers, the new drive system provides fast, controlled emergency stopping of the supercalender, which is safer for operating personnel and increases paper production. Improved tension characteristics during accelerating and decelerating of the supercalender are obtained by a motor-driven memory rheostat that "remembers" roll size. Thus, inertia compensation is a function of the actual roll diameter. This represents the most advanced technique in control of paper calender unwind and wind-up stands.

Co-ordination of the equipment into a flexible, easy-to-maintain electrical system—designed to meet the mill's special needs—resulted from close co-operation between Champion International and General Electric engineers. To meet your specific drive system needs, General Electric engineering services can help design, equip and install a co-ordinated electrical system from one-line diagram to on-time startup. Early in your planning, call your nearest G-E Apparatus Sales Office. Meanwhile, write for bulletin GEA-6508 on paper mill drive systems to General Electric Co., Section 655-19, Schenectady 5, New York.

Engineered Electrical Systems for the Paper Industry

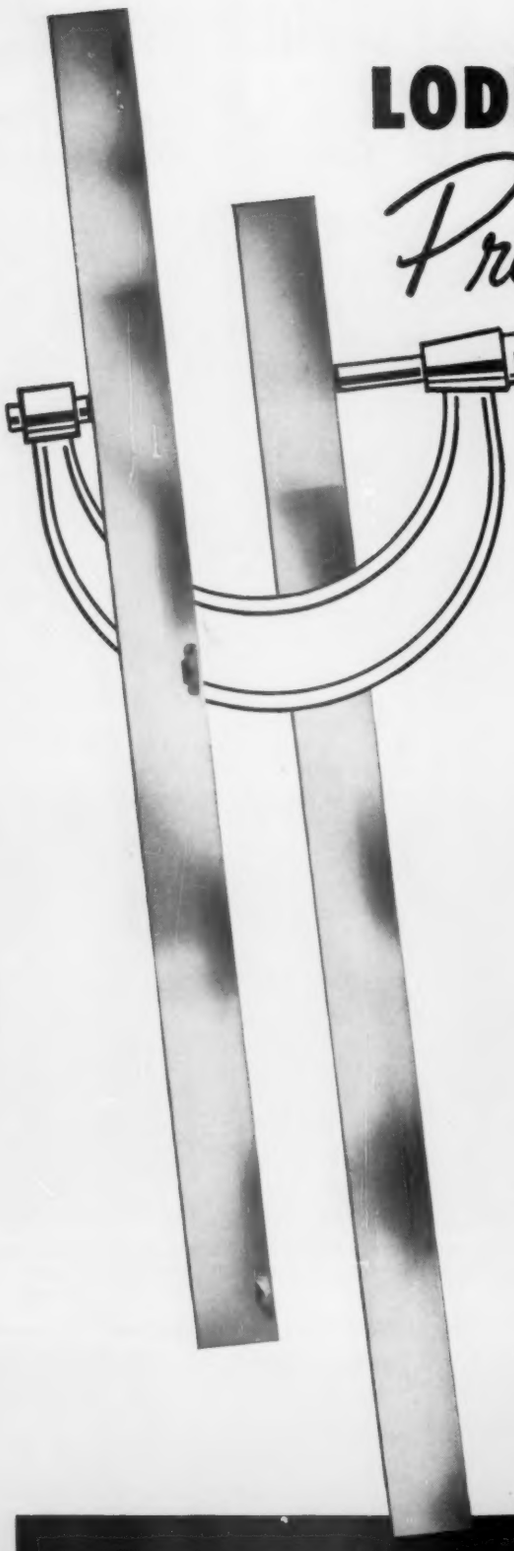
GENERAL ELECTRIC

OPERATION AND PROTECTION of the supercalender drive are provided by these convenient, accessible NEMA Type I enclosed control panels containing all necessary control devices.



MORE DEPENDABLE SOURCE of d-c adjustable voltage power is supplied by this 300-kw industrial type General Electric motor-generator set.

INDUSTRIAL CONSTRUCTION permits rugged service for this auxiliary M-G set containing Kinamatic* generators and an amplidyne. *Trademark of General Electric Co.



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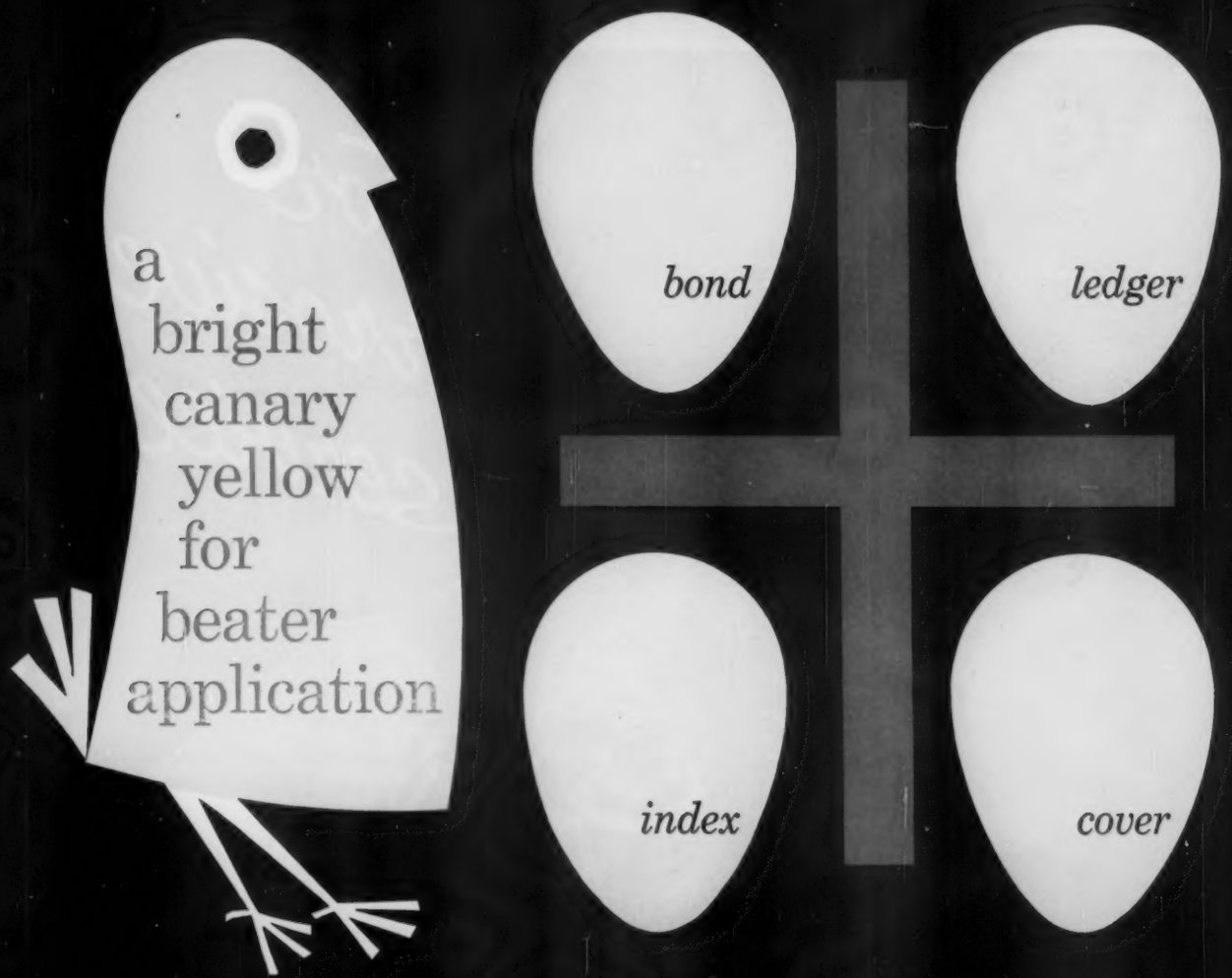

Brilliant Pure Yellow 6GS Extra Conc.

A nondusting acid dye for bond, ledger, index and cover papers

Brilliant Pure Yellow 6GS Extra Conc. may be added dry to the beater without danger of color specks. It produces bright, clear yellows with good fastness to light and very little two-sidedness.

In combination with other dyes and pigments, especially with bright blues to obtain greens, Brilliant Pure Yellow 6GS Extra Conc. acts as a fast-to-light component. Extra advantages include less tendency to burn out on contact with hot dryers, and cleaner backwaters.

Brilliant Pure Yellow 6GS Extra Conc. is only one of many dependable, easy-to-use paper dyes available from GDC. Please write or call us for information concerning these dyes or any paper dyeing problem you may have.

From Research to Reality

gdc gaf

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A SALES DIVISION OF

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Brilliant Pure Yellow 6GS Extra Conc. manufactured by the General Aniline and Film Corporation is sold outside the United States under the trademark "Fenazo Yellow XP."

REPUBLIC

REPUBLIC STEEL

World's Widest Range of Standard Steels

REPUBLIC PLASTIC PIPE OFFERS 3-WAY ECONOMY

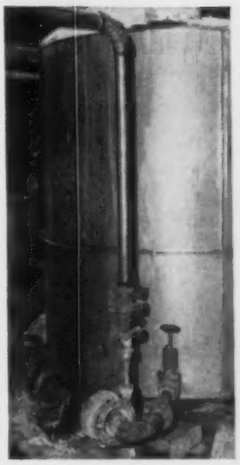
Republic SRK (Semi-Rigid Kralastic) Plastic Pipe is ideally suited to a wide variety of corrosive liquid handling problems in pulp and paper mill service. For example, controlled laboratory tests show Republic SRK is satisfactory for Kraft, Black, Green, White and Sulfite Liquors—as well as Chlorite Bleach and Alum.

This excellent chemical resistance provides major savings in pulp and paper mill piping installations, and SRK requires no maintenance. Replacement costs due to corrosion are eliminated. Moreover, its extreme toughness shrugs off terrific mechanical abuse.

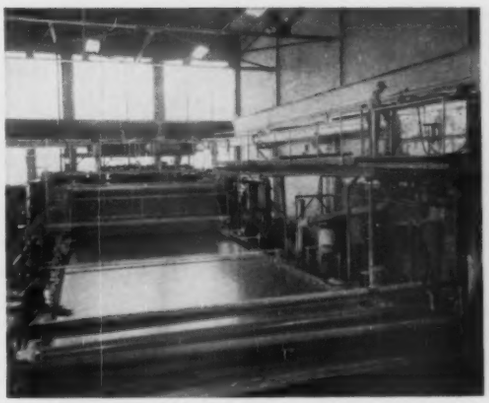
Low installation costs provide a second major source of savings with Republic SRK. It is light in weight—easy to stock and handle—cuts readily with ordinary handsaw or hacksaw. Joints are made with brush-applied solvent and sleeve-type fittings. Resulting "welded" joint is as strong as the pipe itself. This method of assembly is particularly well adapted to work in cramped quarters.

Low initial cost completes the 3-way economy offered by Republic SRK. It costs far less than other equally corrosion-resistant materials—even less than ordinary piping.

It will pay you to check the savings you can make with Republic SRK. Your local Republic representative or industrial distributor will be glad to assist you. Or mail coupon for further information.



REDUCE REPLACEMENT AND MAINTENANCE COSTS with a corrosion-resistant piping system of Republic ELECTRUNITE® Stainless Steel Pipe. In photo at left, ELECTRUNITE Stainless Steel Pipe, Type 316, is used to carry off highly corrosive alum solution from stainless mixing tank. Stainless offers high resistance to corrosion; provides positive protection against contamination and discoloration. Republic Stainless Steel Pipe's great strength, resistance to high temperature, pressure, and physical damage make it ideal for fluid-materials handling. Send coupon for more facts.



OPERATING AND MAINTENANCE ECONOMY were decisive in Allied Paper Corporation's conversion to stainless steel for processing equipment in their Kalamazoo, Michigan mills. Republic ENDURO® Stainless Steel cleans easily—provides high strength plus heat and abrasion resistance. Excellent corrosion resistance prolongs life, protects product quality, cuts replacement costs. Send for data.

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Please send more information on:

☐ SRK Plastic Pipe
☐ ELECTRUNITE Stainless Steel Tubing and Pipe
☐ ENDURO Stainless Steel

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Company_____

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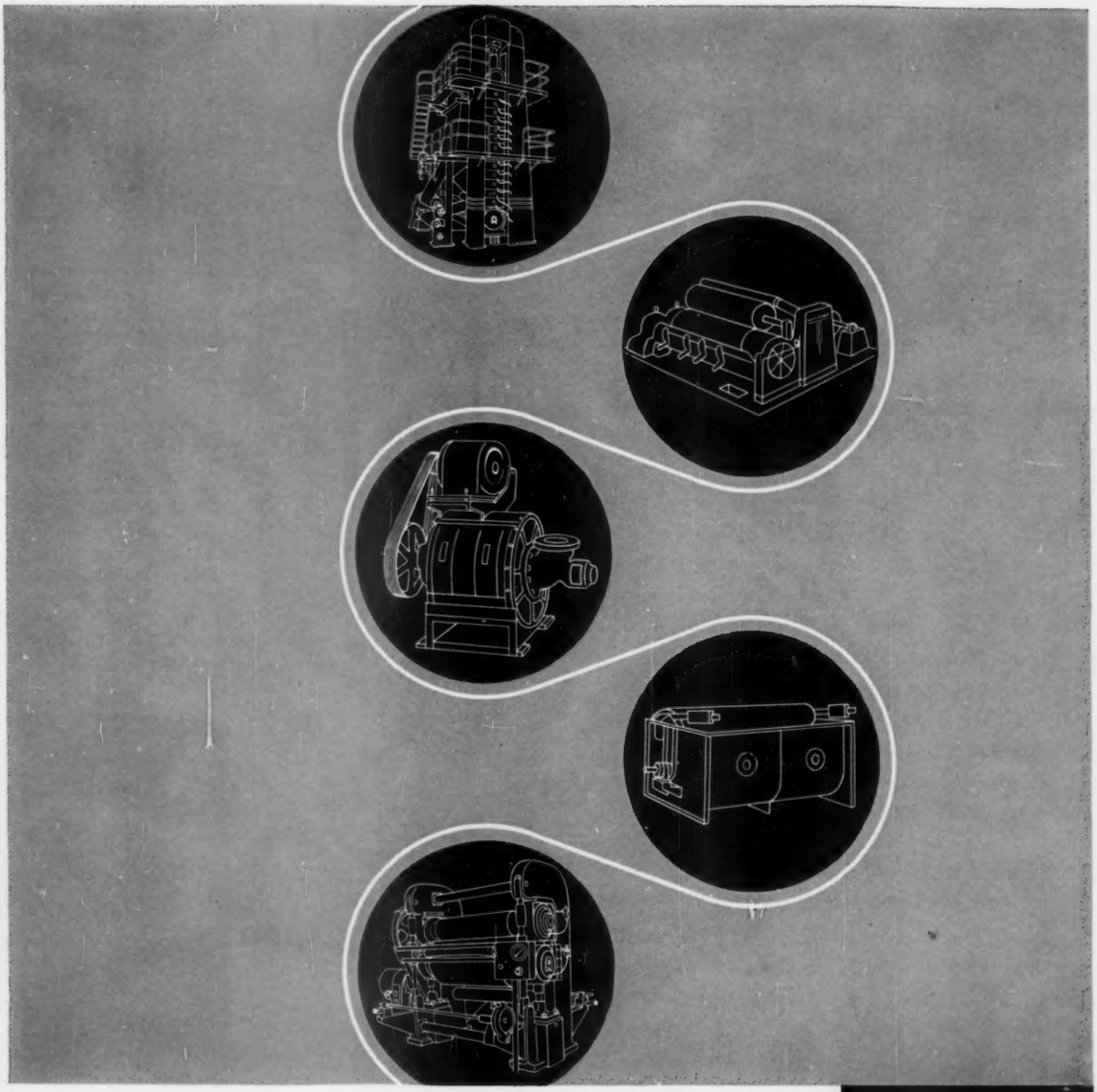

knowing and filling the needs
of the paper industry

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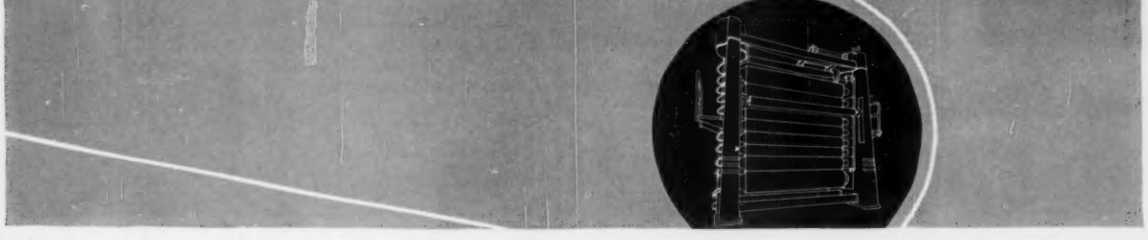
Appleton, Wisconsin

Supercalenders, winders, rotary screens and gravity deckers, textile calenders, machine calenders, calender rolls, Cram Dryer Drainage System.



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In Scotland as well as in the U.S.A.... papermakers use and like

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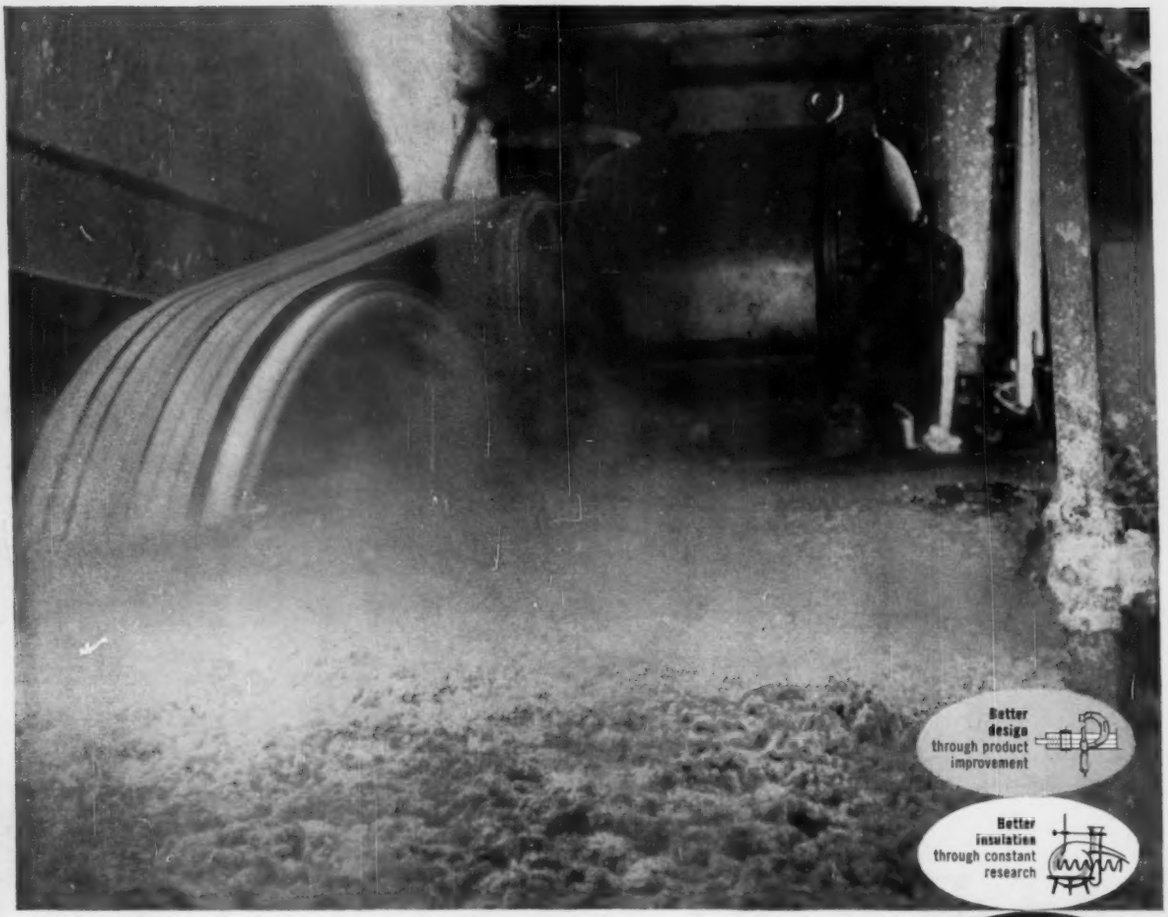
CHLORINE DIOXIDE BLEACHED HARDWOOD SULPHATE

Balanced
Paper-Grade Pulps
Created by Papermakers for Papermakers

RIEGEL PAPER CORPORATION



Moisture-laden hot-spot calls for some cool figuring!

Superior design of Louis Allis electric motors pays off under severe heat-humidity conditions

This paddle-agitator drive gets a steady bath of searing hot vapors from the trough below. Yet, the Louis Allis motor has given continuous and reliable service. Here are the special design techniques that make this possible:

Special attention to insulation—Louis Allis sponsors continuous research into new insulating materials. One example: Louis Allis engineers were first to combine Gilsonite with phenolics and alkyds. The result is a varnish with the highest degree of moisture, acid, and alkali resistance — extra-long life for all motor uses whatever your design problem.

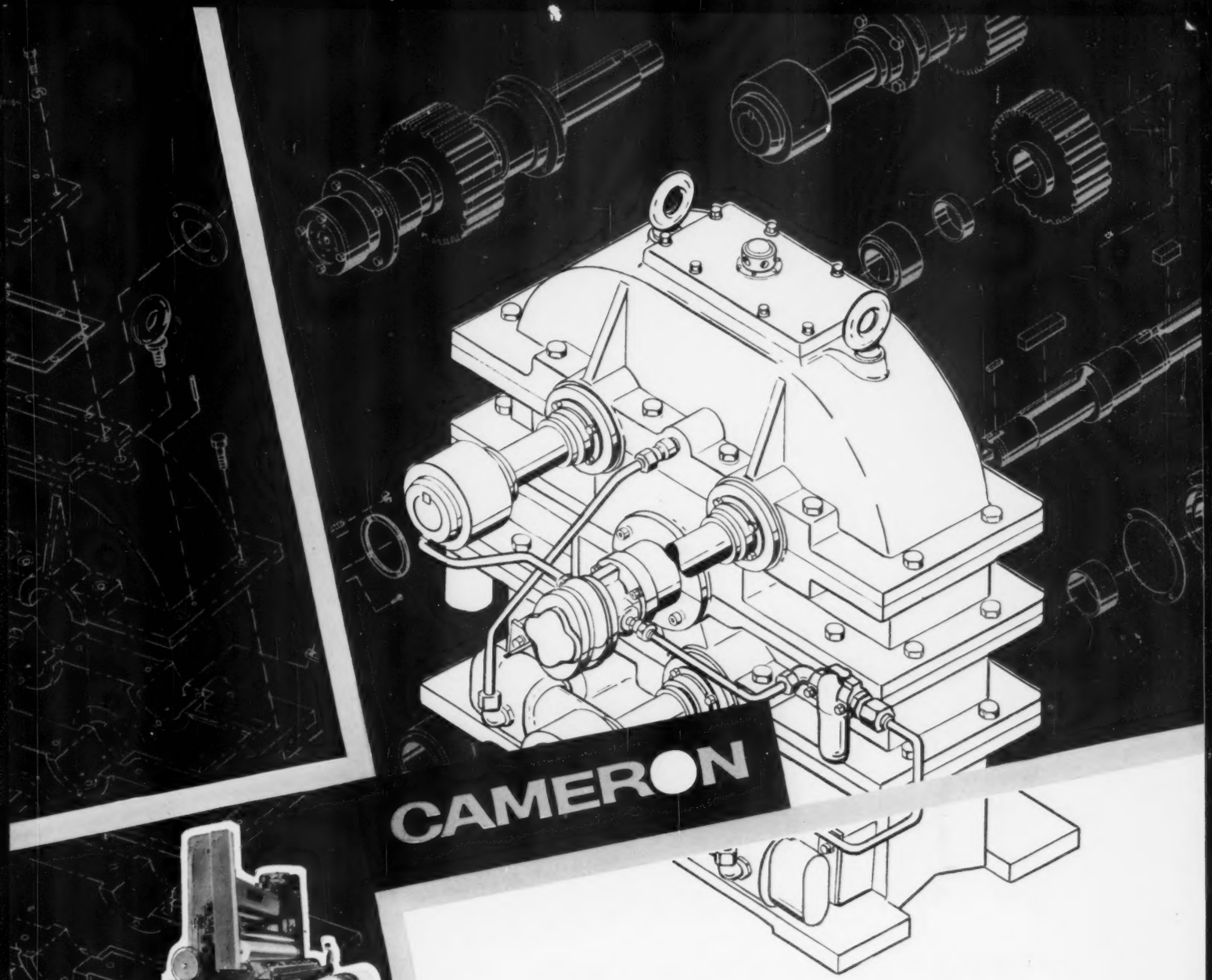
Special care in manufacturing—Quality control of all material . . . careful inspection . . . rigid test . . . all of these add up to the highest quality standards in the industry to assure you of continuous fine performance, dependability under any condition.

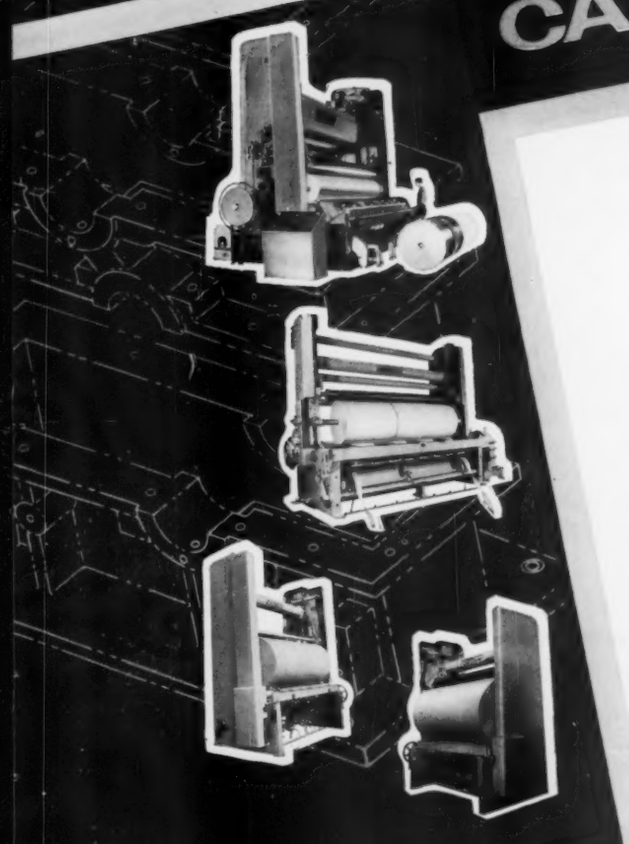
These and other Louis Allis extras—such as locked bearings for longer wear, positive lead identification for easier maintenance, and dynamically balanced rotor for quieter operation — could be the answer to your special design problems.

The complete story is in our Bulletin 1700. May we send it to you? Contact your nearby Louis Allis District Office or write The Louis Allis Company, 444 East Stewart Street, Milwaukee 1, Wisconsin.

LOUIS ALLIS

MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE-SPEED DRIVES





CAMERON'S ISOLATED GEAR BOX, with forced feed lubrication and flexible couplings, presents another example of the *inward excellence* of Cameron winder design. Gears of the main drive assembly are isolated from deflection of the rewind drums while, at the same time, vibration is separated from the driven rotating elements. The advantages are in longer gear life and superior web control at higher operating speeds.

INWARD EXCELLENCE is manifest in every detail of Cameron design and performance. It is an important *extra value,* developed only through Cameron's years of intense specialization in the design and manufacture of slitters and roll winders.

CAMERON SPECIALISTS welcome any opportunity to show the way to low cost, high speed production of better rolls of any material. Your inquiry will receive prompt and specialized attention.

Cameron Machine Company, Franklin Road, Dover, N. J.

Canada: Cameron Machine Co. of Canada, Ltd., Royal Bank Bldg., Toronto 1

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AA-349

BY CAMERON's team of specialists

50 years devoted exclusively to the design and manufacture of slitting and roll winding equipment.

Crossett Paper Mills, A Division of The Crossett Company, Crossett, Arkansas

Where Trees are Processed into Paper

Wyatt's Fabricated Metal Products Multiply as the Mills Expand in the Forests Whose Growth Exceeds Consumption.

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WYATT METAL & BOILER WORKS, INC.

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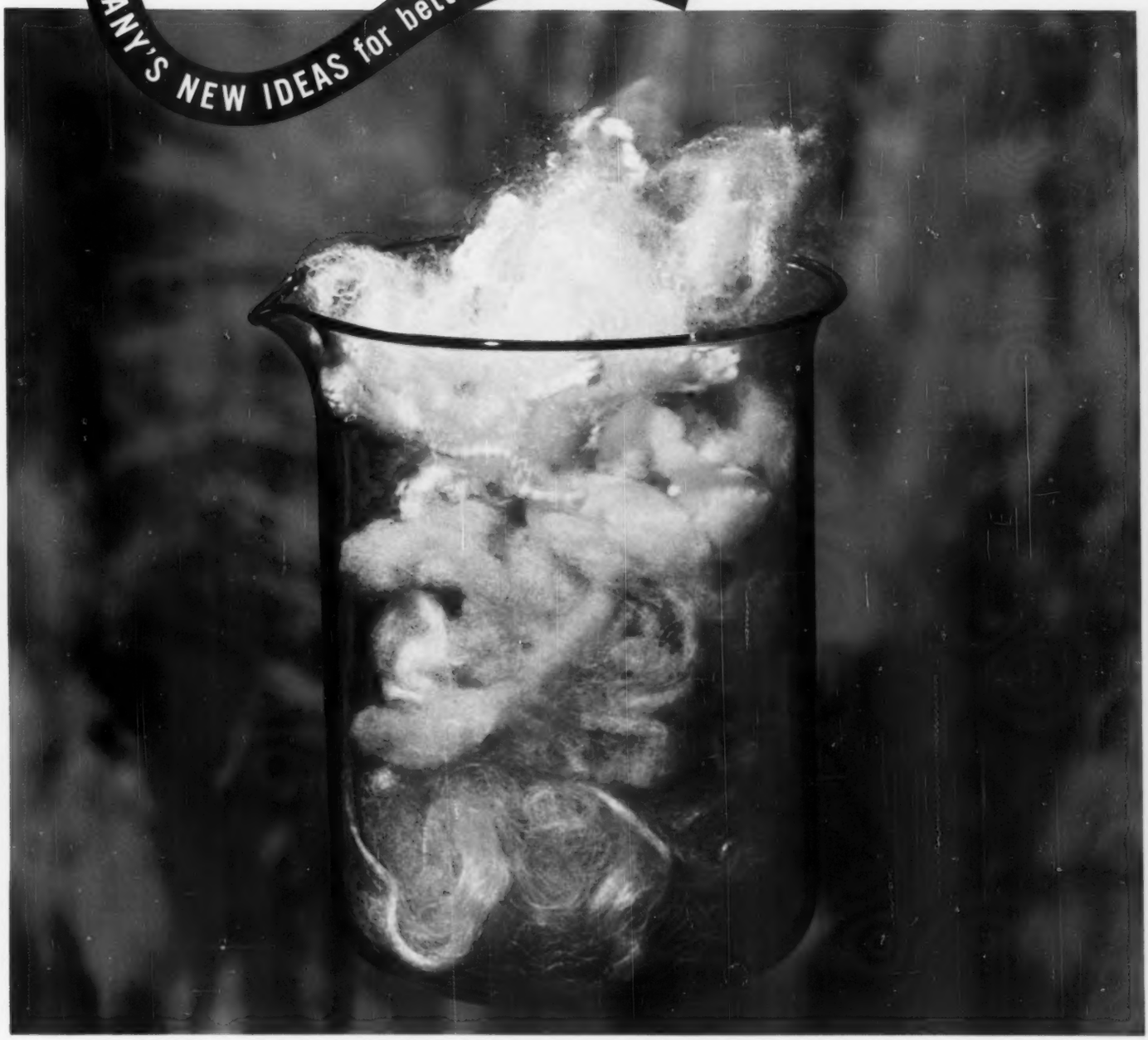
Molder and Fabricator of Plastic and Rubber for the Processing Industries—Paper in Particular.

MANUFACTURERS AND ERECTORS SINCE 1913

ALBANY'S NEW IDEAS for better papermaking



THE BIG SECRET OF SYNTHETICS

One reason why paper machine felts constantly improve—giving longer life and more efficient production—is the increasing use of synthetics in their manufacture. The big secret of synthetics, however, is proportion. Ever since Albany patented the use of synthetics in paper machine felts, our research laboratories have worked continually to establish the right amount of the right synthetics which, blended with various types of wools, give the best results for each machine application in terms of life, finish and water removal. You can be sure, therefore, that a synthetic-content felt from Albany will do the job better. Our goal, as always, is to help you produce more saleable tons per day!

AF

ALBANY FELT COMPANY

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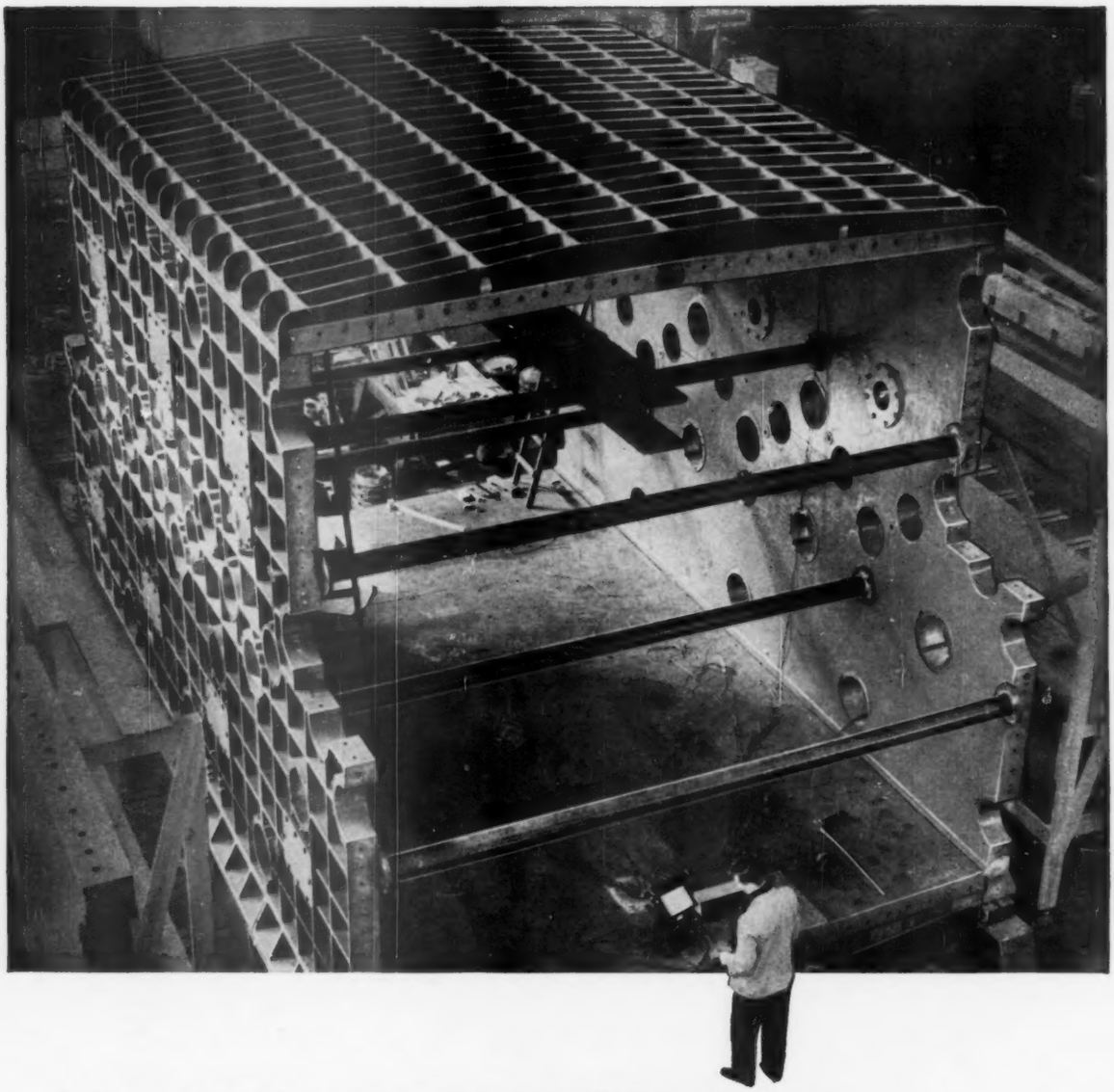
OTHER PLANTS: HOOSICK FALLS, N.Y.; N. MONMOUTH, ME.; ST. STEPHEN, S.C.; COWANSVILLE, P.Q.
"THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS"

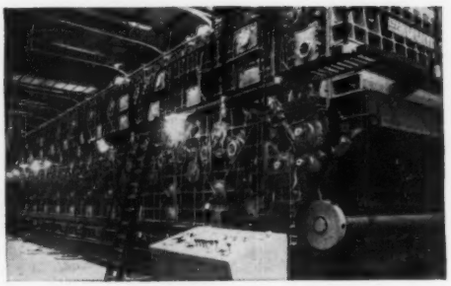


The Pulp Drying Machine

at Hinton, Alberta, is a

DOMINION

The strain gauge test, here being performed on a section of the vacuum chamber for the Dominion Vacuum Drying Pulp Machine, is typical of the modern methods employed by Dominion Engineering to ensure that its products maintain the high standard of performance established over the Company's many years of service to the Pulp and Paper Industry.



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COMPANY LIMITED

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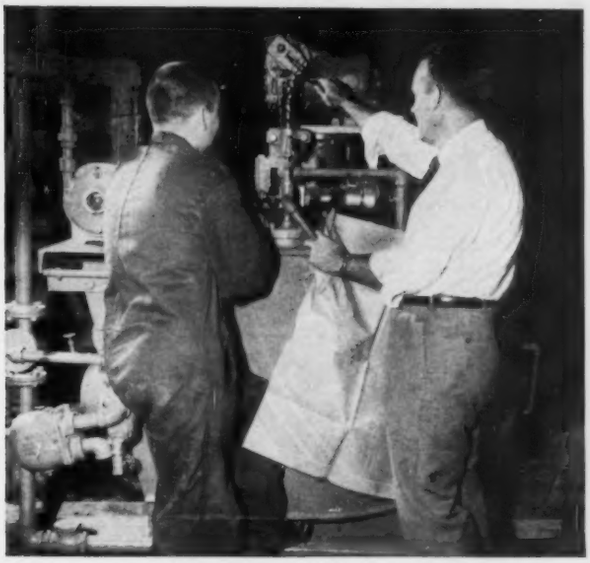
YOUR BONUS

The man from Hercules is never just an "order taker." He's a Technical Representative, thoroughly trained in the science of papermaking. Supplying quality products from unlimited distribution facilities, Hercules adds another all-important bonus—TECHNICAL SERVICE.



NEW MILL OR NEW EQUIPMENT—Even before a mill is in operation the Hercules technical representative gives engineering assistance in the design of chemical handling systems. Here a Hercules man helps with the installation of an automatic emulsifier—an exclusive Hercules development.

ON STREAM—When a mill is in operation the Hercules man is always on tap to assist in finding the solution to any technical problem and to recommend the right material to meet your specific requirements.

BEHIND THE SCENES—Hercules maintains technical service laboratories at its numerous plants as well as its research center in Wilmington, Delaware. All of these facilities are at your command for assistance in solving unusual problems.

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Paper Makers Chemical Department

HERCULES POWDER COMPANY

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PP57-6

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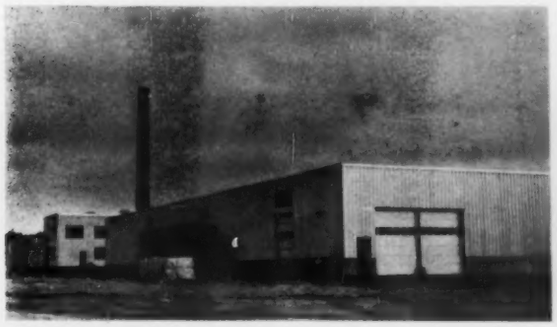


Hurlbut's Laurel Mill

. . . view at left is looking north from slight eminence which staff has nicknamed "Krichels' Alley." Unclosed portion at left will house 120 in. Rice Barton machine . . .

From Opposite Side

. . . taken cater-corner from picture at left, showing backside of new mill. This side parallels New York, New Haven & Hartford main line between New York and Pittsfield, Mass.

New England's First . . . . .

. . . Fine Paper or Specialty Mill in 45 Years . . .

. . . one has to go back to before World War I—1912—when Strathmore Paper Co. built its Woronoco, Mass., mill, for the last new mill in this class and the last new mill of any kind in southern New England.

Hurlbut Paper Co., now merged with The Mead Corp., but continuing under present management, is shooting for a startup next spring.

The new mill is entirely under cover now, protected against weather as machinery continues to be installed this winter. It is located alongside Route 102, between South Lee and Lee, Mass.

Known as the Laurel mill, it is just two miles north of Hurlbut's Willow mill, a two-machine operation in South Lee.

On the very day that a PULP & PAPER editor, touring along the road in the Berkshires, took these pictures, Hurlbut was announcing a new synthetic paper fiber.

Edward A. Sitzer said the new product is an acrylic fiber which is possible to fibrillate and has been made into paper without use of a bonding material on a conventional paper machine. It prints well, its dimensional stability is excellent, and it may be used as absorbent paper for laminates, for filter papers and electrical laminates and tapes for high chemical resistance and possibly for bank notes. Chemstrand Corp. supplies the acrylic fiber.

In some ways, the little Hurlbut mill, with its specialty absorbent and technical papers, including papers used in plastic table tops and furniture, is more closely allied to the plastics industry than to the paper industry.

Mr. Sitzer told PULP & PAPER that Hurlbut probably invests more in research, much of it carried on in cooperation with major chemical companies, than any other paper mill of its size or type.

Equipment . . .

The new Laurel mill will be a straight flow operation with three E. D. Jones & Sons beaters and Jones Pulpmaster, made in nearby Pittsfield, Mass., and a 120 in. Rice Barton Fourdrinier machine with J. O. Ross Engineering hood and air system and General Electric drives. Power will be purchased. Much of the equipment is to be stainless steel.

The new mill will increase Hurlbut production by 125%. It is made of red brick, glass brick and aluminum facing. The plant is one-story, 202 ft. wide and 487 ft. long. There is ample property for future expansion and it can be expanded on three sides.

Mr Sitzer explained to PULP & PAPER how the decision was made that is giving New England its first new mill of this class in nearly two generations. He said the choice was between rebuilding the present mill in South Lee, which would take care of Hurlbut expansion for a few years, or to invest that money and more in a mill capable of serving the growing Hurlbut markets for a decade or more. The success of Hurlbut papers' use in combination with fibers for molded products is evidenced by the samples of end products shown in the mill's reception room. Many new synthetic fiber types of paper have been developed here in recent years.

Investment . . .

The expansion represents an investment of something around $4,000,000. Water from the Housatonic River will be "double processed," he said.

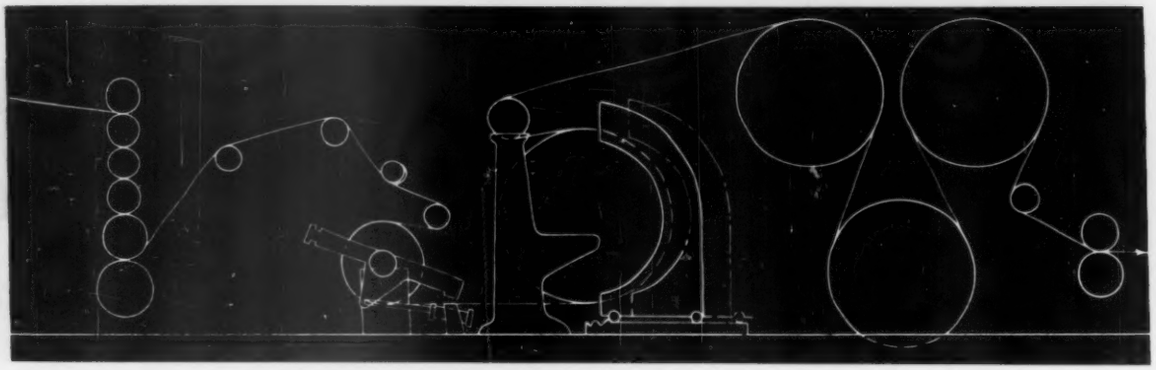
Hurlbut is now making paper for plastic laminates for both decorative and industrial use, liquid and air filter papers and other papers made of glass and silica fibers.

Frank G. Brinster is executive vice president and treasurer; J. M. Burt is sales manager; Dr. Hanns F. Arledter is technical director; Engelbert Krichels is superintendent; Kenneth Bancroft is chief engineer, and David Bowers is purchasing agent.

PULP & PAPER's first pictures of the mill were taken from a slightly elevated field off the road, where company officials have driven so often in watching progress that the wheel ruts have formed a road which has been nicknamed by the employes "Krichels' Alley."

For High Speed Operation . . .

To coat both sides of a sheet, these operations would be set up in sequence. . . .



Wire Side Coating On-Machine or Off-Machine . . .

Sheet enters from left and leaves from right. Entrance can be from a calender as shown for on-machine operation or from an auto paster for off-machine operation. To coat bottom side, sheet must be reversed over the coater as shown. From there, it passes around cast-iron dryer enveloped by a Gardner high velocity air dryer. Leaving this dryer, sheet must again be reversed, passing over additional cylinder dryers if necessary for complete drying and through set of draw rolls to reel. It occasionally happens that reversing roll over Gardner dryer is set up as an additional cylinder dryer.

This New Kind of High Velocity Dryer

. . . . invented by Tom Gardner, Marathon engineer . . . and

First On-Machine Uses of Blade Coater

. . . . the Rice Barton trailing knife coater . . .

. . . . these items were big news in New England where a PULP & PAPER editor recently toured mills and attended a joint TAPPI-Supts. Fall meeting at the Curtis hotel in Lenox, Mass., in the heart of the Berkshires. (Incidentally, whoever set the October dates for that meeting picked a weekend when the famed Berkshire Fall foliage was at its prime.)

The new dryer (which isn't really new, because it has been in exclusive use at Gilbert Paper Co., Menasha, Wis., for a couple of years) is manufactured by Overly's Inc., Neenah, Wis., under sales rights assigned to Rice Barton Corp., and will be exclusively handled by Rice Barton.

Leon E. Smith, sales engineer, gave a paper at Lenox on new coating applications by the blade method, utilizing the Gardner dryer. Philip A. Peterson, sales engineer, answered questions on the coater and Tony Cirrito, research director, on the dryer. All three are with Rice Barton.

Supplments Existing Dryer . . .

Actually, the Gardner dryer is a separate unit used to supplement an existing dryer. It is built in the form of a hood or shroud and works on the high velocity air jet principle.

At Gilbert Paper Co., the high velocity dryer on No. 3 air dry machine accomplishes in 20 ft. what would formerly have taken 500 ft. of drying space.

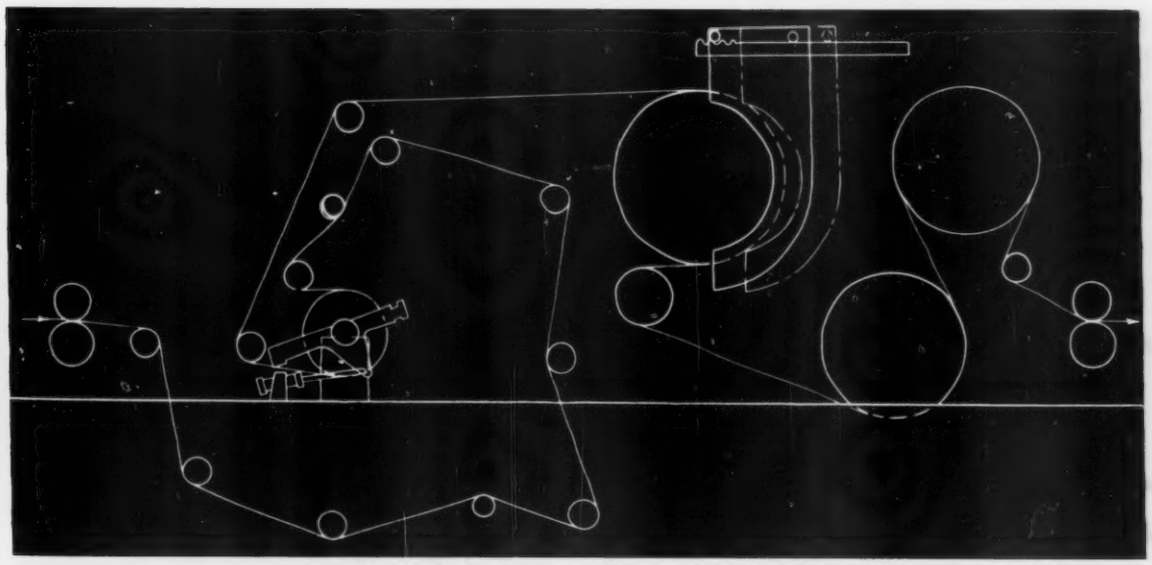
As Mr. Smith explained its use, "a traveling web of paper has a thin film of air on its surface known as the 'heat barrier.' This film may be about .005 in. thick. It is always present and acts as an insulator. The application of high velocity hot air directly onto the surface reduces the thickness of this barrier and accelerates the drying rate. When used in conjunction with a conventional paper dryer, the drying rate is increased 2½ to 3 times.

"On a coating range where two conventional dryers are normally required, one would be more than ample with a Gardner dryer attachment."

Even at the Lenox meeting, where only a small group heard the talk, and very few were experienced in coating, there were many questions on both the coating and drying applications.

Big Savings Reported . . .

A Gardner dryer is now in use after trailing blade coating drying at the rate of 10 lbs. per sq. ft. per hr., revealed Mr. Cirrito. The jets are fed with 320 degree air at 16,000 fpm.



Felt Side Coating On-Machine or Off-Machine . . .

The leads when coating felt side are more complicated. Sheet again can come in from left from a calender on-machine or an auto paster off-machine and pass out at right. The complicated lead at coater is necessary in order to handle the sheet. If sheet should lead directly from calender to coater, there would be no way of continuing it down the machine without passing the coated side over a reversing roll. In arrangement shown, the coated side does not come in contact with dryer. Reversing roll can be a large diameter cylinder dryer if desired.

He said the new dryer can go higher and faster than a conventional cylinder dryer and "can plug more heat in, if the paper will stand it." Propane gas or natural gas can be used, or heat can simply be taken off a high pressure steam line in the mill.

Spectacular savings being made with trailing blade coaters and their applications to on-machine operation and especially on the new Fourdrinier kraft board machines were highlights of Mr. Smith's talk.

He said the trailing blade is operating at over 2,000 fpm without ribbing, picking or scoring the sheet. Coating films are on the light side—1½ to 5 lbs. per ream, with solids from 35% to 60%. Weights are maintained closely by control of solids and flow properties of the coating medium.

Twenty Units in Operation . . .

To date there are 20 units in operation and 11 on order. One major Southern mill started up a trailing blade coater on foodboard a week after Mr. Smith's talk. Three other new or comparatively new Southern mills are putting in the coater on their machines. One will be a double coater after the calender stacks, replacing a roll type coater. A board mill on the West Coast also is replacing an existing coater with the trailing blade. Up to now most trailing blade installations have been off-machine.

Mr. Smith pointed out the trend to on-machine use of the coater is due to its ability to keep up with machine speeds and that it is usually located directly after calenders with paper-carrying rolls, drives, frames, unwind stands, drives and motors following.

In the first story on the trailing blade coater at Blandin Paper Co., in the Apr. 1957 issue of PULP & PAPER, the coater's operation was described. The sheet passes around a rubber covered backing roll, through the coating medium, which is contained in a pan type reservoir with sealed ends, "similar to a conventional calender water box," as Mr. Smith described it. After passing through the coating, the sheet passes under a flexible steel blade with a pre-determined pressure applied to the sheet and backing roll. This removes excess coating and smoothes the surface.

Advantages . . .

Mr. Smith listed these advantages:

1. Lightweight coating mediums at high speeds.
2. Economical use of coating mediums.
3. Simple construction.
4. Low power consumption.
5. Low maintenance cost.
6. Use of high solid and high viscosity medium with resultant savings in drying costs.
7. Smooth surfaces free of rib markings, chatter and scoring.

Representatives of big mass circulation magazines using coated paper told PULP & PAPER that they anticipate making spectacular savings in the range of hundreds of thousands of dollars in paper costs and postage due to the use of lighter weight raw stock and lightweight coating with the blade coaters.

Questions from mill men at Lenox brought out that in present applica-

First Revealed to Small Audience in New England; Here's Story First Told to PULP & PAPER Readers

● **Because of the large audience of PULP & PAPER readers who are keenly interested in new coating developments, and new drying techniques, a paper which was given to a small regional audience in Lenox, Mass., a few weeks ago, is reported in detail in this article—along with other important related developments.**

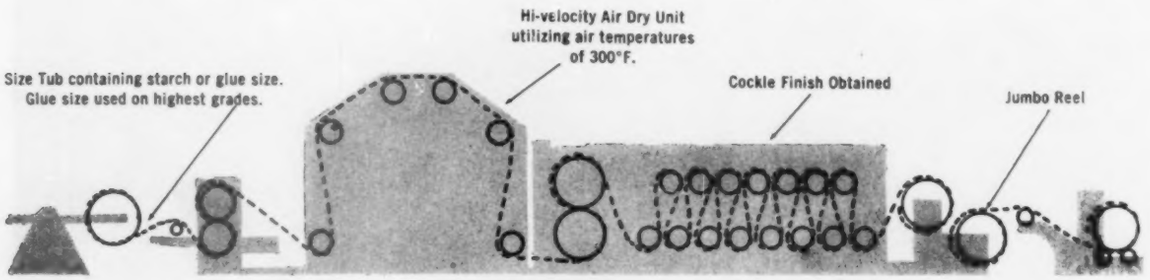
It so happened that PULP & PAPER's editor, Albert W. Wilson, was on a tour of southern New England mills at the time. Actually, there were very few in the Lenox audience who had experience in coating. But still, even from this tiny audience, many questions were fired at the speakers.

From the paper given, from the questions, and from information from other sources, PULP & PAPER has brought to its readers this first story on the new Gardner dryer and of important new applications of the trailing blade coater.

tions ink savings of up to 40% are reported. The savings in the case of one bleached food board mill, in cost of ink, were enough to pay for the coating installation. It put on a lighter coating "than most think is necessary for board," was one comment.

In one installation, for bread wrap, the blade coater puts on a titanium pigment coating at up to 2,000 fpm. In some mills it puts on as low as 1 lb. per side per ream, in others as high as 12 lbs. Savings of 3 to 4 lbs. per side per ream were reported on most installations, depending on the end product. Cost was said to be about one-third a typical roll coater.

Mr. Smith gave out literature on the coater to his Lenox audience, including reprints of PULP & PAPER's April 1957 article.



Egan enclosed air jet dryer, not shown in this drawing, immediately precedes the Gardner dryer.

Gilbert Paper Co. Pioneers in Air Drying

Drying concept brought from France leads to two new air drying developments . . first significant changes in 60 years . . .

• New concepts of air jet drying—described as the first significant changes in air drying in over 60 years—were put into practical application at Gilbert Paper Co., Menasha, Wis., world renowned as a pioneer in this field, three years ago.

This is where the first Gardner high velocity dryer was successfully used. But at Gilbert, before the Gardner dryer, came a dryer developed and installed by Frank W. Egan & Co., Somerville, N.J. Similar work had been done on high velocity air drying in England and France.

In its application at Gilbert Paper Co., the paper is entirely supported on both sides by air jets, ¾ in. apart. This dryer is entirely closed in a housing.

This dryer was "father" to the Gardner high velocity dryer. Now they are both used in sequence on the No. 3 tub-size air dry machine at that fine paper mill. The Egan dryer precedes the Gardner dryer. The Egan dryer utilizes 330 degree temperature air and the Gardner dryer, 300 degrees F. The hood-like Gardner air-jet dryer was developed in order to get more speed.

It was at Gilbert Paper Co. that the first air dryer, known as the Barber type, was developed and put in use back in the 1890's. The new principles of the Egan and Gardner dryers in the same mill mark the first significant changes since then.

A Barber type unit follows the Gardner dryer on No. 3 air dry machine, and it is in this stage that the cockle finish is applied to the paper. The amount of cockle is controlled by the degree of heat and amount of tension on the paper at it dries.

Ted Gilbert, president of Gilbert Paper Co., said the new drying applications on No. 3 accomplish in 20 ft. what would formerly have taken 500 ft. of drying space.

Thomas A. Gardner, Dryer Inventor . . .

. . . is an m.e. graduate of Oregon State College, 1949. He is in the Central Engineering Dept., Marathon Corp., Menasha, Wis., and formerly was an engineer with Abitibi in Canada. He is a native of Wisconsin.

Peterson . . .

Smith . . .

Cirrito

. . . just after they emerged from barrage of questions about trailing blade coater and Gardner dryer . . .

How Pallet-Van System now in use on Pacific Coast

Reduces Normal Shipping-Handling Damage by 93%

At Publishers' Paper Co. . . .

(Left) Hyster lift truck picks horizontal roll from mill platform with Cascade revolving roll-grab. (Right) Operator rotates roll, then sets endwise on steel pallet secured to semi-trailer. Here he is placing final roll on pallet. Note ¾ in. Signode straps in place over roll-pairs ready for final fastening to pallet.

Palletized Roll Shipping

Also saves time and money and everyone concerned is happy over achievement of better-than-expected results

By LOUIS H. BLACKERBY

Western Editor, PULP & PAPER

● This is the story of a new system for efficiently and safely moving paper from mill to purchaser. It has the approval of all participants—paper manufacturer, contract truckers, shipping company and purchasing publisher.

The system got an auspicious start recently when 2,300 tons of Publishers' Paper Co.'s newsprint rolls were taken aboard the steamer Coast Progress in Portland, Ore. and shipped to the Los Angeles *Times* in Los Angeles. Since then the system has been a regular procedure for Publishers'–*Times* shipments.

The Process . . .

. . . in brief, consists of loading paper rolls on steel pallets at the mill, then unitizing them with steel strapping and shipping the package intact so purchaser receives it in the same form that it left the mill. Although a seemingly logical and simple transportation concept, many changes of normal procedures were necessitated.

In spite of difficulties, Coastwise Line—which developed this roll handling system as a part of its pallet-van loading system—anticipates converting other ships to this method.

R. W. Cabell, president of International Shipping Co., agents for Coastwise Line, told PULP & PAPER the system eliminates four handlings and "will cut normal shipping damage by 80%."

This last factor has significance to the paper manufacturer, purchaser and consumer. In-transit damage is recognized as an important cost factor. As pointed out a few months ago by Elliott DeForest, of Joseph B. Ward & Associates, Seattle, the damage to newsprint rolls going just to the California market totals nearly $1 million annually—about half suffered in shipping and the other half in handling.

A significant factor pointed out by Mr. Cabell concerns the increased speed rates at which rolls are loaded on and unloaded from the ship. This has increased from 35 to 100 tons per hour. The ship turn-around also is about three times as fast on pallet-van operation. The "van" phase of the master plan contributes significantly to faster turn-arounds. This involves carrying loaded van semi-trailers on shipdeck.

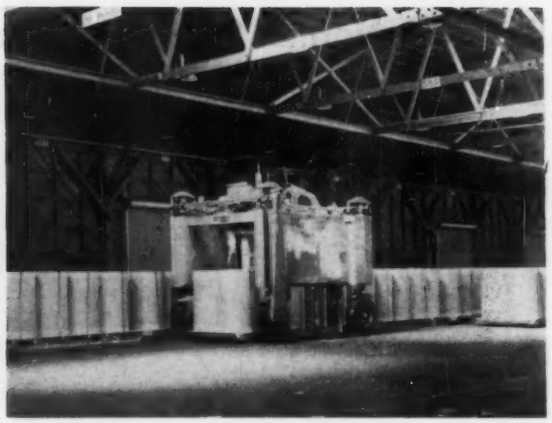
To ascertain end results of pallet loading and shipping, PULP & PAPER asked The Times-Mirror Co., publisher of the *Times*, for this information. After two months use of the system, Traffic Mgr. T. J. Hickey stated, "Our damaged newsprint prior to pallet shipping averaged approximately ¾ of 1%. It has been reduced to less than 1/20 of 1% damage. I believe this will be further reduced as everyone becomes more familiar with this type of handling."

These results from early shipments via the new system show actual damage reductions of 93%, more than surpassing the 80% reduction anticipated by Mr. Cabell.

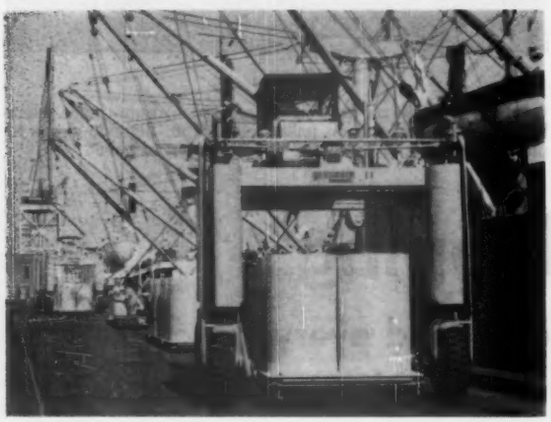
Further future economies are to be

At Portland Municipal Dock . . .

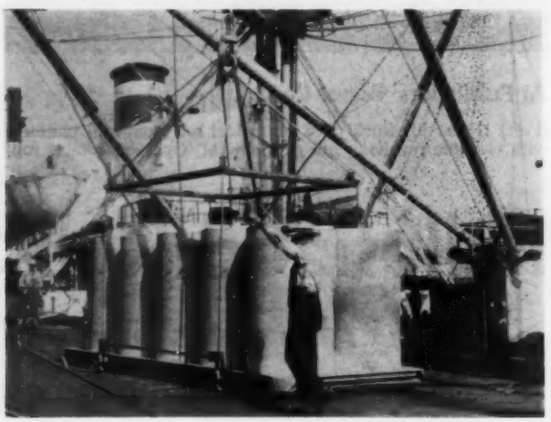
Removing 10-roll 18,000-lb. palletized units from truck-trailer with 20-ton Gerlinger forklift.



Placing palletloads in warehouse with 20-ton Gerlinger materials carrier.



Gerlinger carrier moving 10-roll pallet unit to dock alongside "Coast Progress" for loading at rate of 100 tons per hour. Note another in distance.



Special-built sling in place for swinging unitized load aboard. Tapered pallet rails allow under-mounted wheels to engage when far end raised. Pallets built by Freightliner Corp.

Towmoter forklift in hold, one of four on ship for loading and unloading, takes off with palletload to be stowed 'tween decks.

expected. Mr. Hickey says one of these will be "a considerable reduction in the weight of the wrapper and we intend to experiment along these lines."

Regarding possible complications the system might engender at consignee's warehouse or plant he stated that the same speed of unloading has been maintained as was previously experienced with loose stowed newsprint but no particular economies have resulted at these points.

What It Takes . . .

Mill-to-publisher pallet transport of paper rolls necessitates method and equipment modifications and calls for the use of machines which have not previously been prominent factors in paper handling. In fact, some of the units are reputed to be the largest of their type yet built.

In addition to a ship equipped for pallet handling, a large number of

pallets are required. Freightliner Corp. built 500 of these in Portland, Ore., for start-up of Coastwise Line's system. Each pallet weighs nearly a ton, is 17⅞ ft. long by 7½ ft. wide, has two small wheels recessed under one end where the support rails taper up like a sled runner so the wheels will engage the deck when the opposite end is lifted. Steel rods along each side provide holds for steel strapping uses to secure rolls in place. The straps are applied at the mill and removed after delivery to the purchaser.

Newsprint rolls were formerly rolled directly into trucks at Publishers' Paper Co.'s Oregon City plant. Except for erecting a prefab Butler building over the open area adjacent to the existing loading platform, no other plant additions were required, according to Sam J. Robinson, vice pres-gen. mgr. of Publishers'. Acquiring handling facilities was not necessary because Johnston Bros., contract carrier which hauls this plant's paper, provided the required equipment. It also does its own loading.

How It Is Done . . .

A Johnston truck-trailer arriving at the mill with two secured and empty pallets pulls into the covered loading area and parks. The truck driver then loads ten rolls on each pallet with a Hyster lift truck equipped with Cascade revolving Roll-Grab. Loading consists of picking up a 1600-lb. roll from horizontal position with the lift-mounted grab, revolving the roll 90° to vertical while moving from pick-up platform to the truck, then placing the roll endwise on one of the pallet squares.

When the two pallets are loaded—ten rolls on each—the truck driver-loader sets the lift truck aside and secures the rolls to the pallet with Signode ¾-in. steel strapping.

The entire loading operation takes one man about 30 minutes; two men 20 minutes. This 10-minute differential is the result of having the straps in place with one end fastened by the time the last roll is in place. Other Johnston drivers normally assist with the strapping when they are present and not otherwise occupied.

What Happens at Dock . . .

The loads are trucked some 15 miles to the Portland municipal dock. There the pallets, complete with newsprint rolls, are unloaded for under-roof storage and subsequently to shipside. Facilities at the dock for handling and transporting these 9-ton "packages" consist of three king-size 20-ton capacity machines—a lift truck for removing palletloads from truck-trailer and placing them for temporary storage, and two straddle-type materials carriers which deliver to shipside. All three of these industrial trucks were manufactured for this job by Gerlinger Carrier division of Towmotor Corp.

The "Coast Progress" is equipped with special loading bridles for picking up palletized loads at dockside, swinging them aboard and lowering them into holds. There the pallets are moved back into 'tween-deck space by means of smaller Towmotor forklifts. The ship carries a complement of four such machines for use in loading and unloading. It is in conjunction with ship loading and unloading that the pallet wheels come into use. By elevating the rear end of a pallet with a lift truck the front end comes to bear on the wheels and the entire load is rolled into loading position. The lift trucks can also skid the palletloads sidewise without benefit of rolls, a practice that is occasionally used when finishing off loading at various deck levels.

Solutions to Handling Problems

Solutions to "unusual" materials handling problems are described in the current issue of "Handling Materials Illustrated," a magazine published by Towmotor Corp. It features photo-stories on materials handling problems and their solution related to use of Towmotor-Gerlinger fork lift trucks and material carriers. Gerlinger Carrier Co., Dallas, Ore., is a subsidiary of Towmotor Corp. Each article compares "old" v. "new" techniques. For copies write Towmotor Corp., 1226 East 152nd St., Cleveland 10, O.

Act Before the Well Runs Dry

At the Fourth Annual Watershed Congress, held this year in Atlanta, Ga., increasing concern was expressed by all speakers over the state of water in the U. S.

Although plentiful now, some thought-provoking figures were introduced as points in favor of water conservation, more considerate use of water supplies. Industry, for instance, has boosted its use of water from 77 billion gals. in 1950 to 110 billion in 1955. Expected use in 1975: 215 billion gallons, a 279% increase over the 25 year period.

Said one expert: "Industry is not enough concerned about the condition of the well . . . the paper industry, for instance, should have a water conservation program right now that is equal to its tree conservation programs.

Sutherland to Appeal

D. Manson Sutherland, president of Sutherland Refiner Corp., said his company is appealing to the district court of North Carolina the decision of Judge Don Gillam, eastern North Carolina district court, upholding North Carolina Pulp Co. in an action for patent infringement brought by Sutherland on Feb. 27, 1953.

The judge held that no item in the Sutherland hot stock refining process was "new" but its success was due to "skillful adaptation." He said "Sutherland has erected a new market for its concededly excellent refiner" and "this is sufficient reward for having reinforced the weak link in high yield pulping."

Dauterman ..... King ..... Cash ..... Ostenson ..... Savage ..... Morden

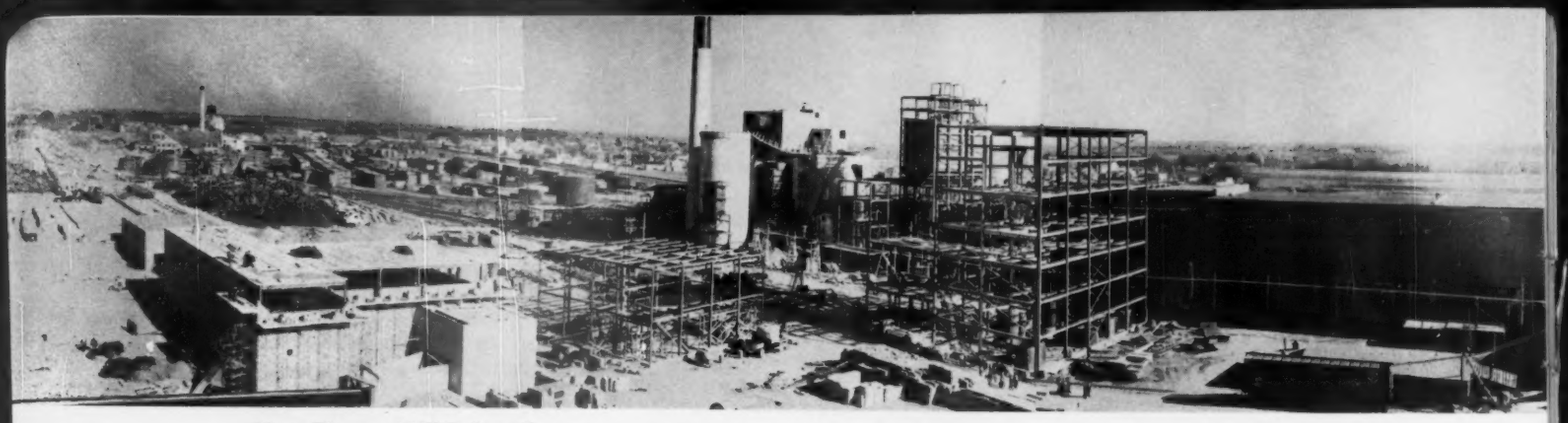
Plan New Supts. Group

Groundwork for possible formation of a North California affiliate group with the Pacific Coast Div., American P & P Mill Supts. Assn. was laid at a dinner in Antioch, Calif., attended by 57 pulp and paper men, presided over by Gus Ostenson, Crown Zellerbach mgr. at Antioch.

Jack Savage, Crown Z, Camas, chairman and other Coast Division officers—Henry Dauterman, Longview Fibre Co., Glen King, CZ, West Linn; Burke Morden, Morden Machines Co.—offered to help.

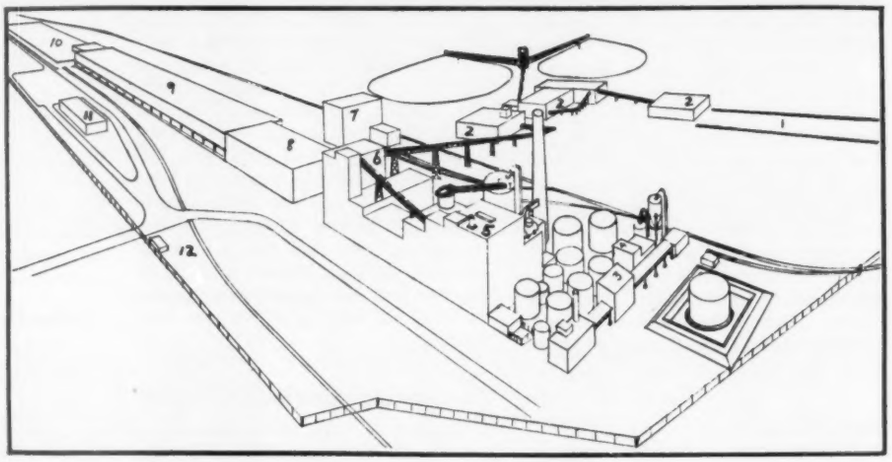
Mr. Savage said the National Supts. Convention in 1960 may be in San Francisco and the Coast Division may meet there in 1958.

C.R.P. Cash, Fibreboard Paper Products, Lafayette, Calif., stressed advantages for such a group. Mr. Ostenson named a steering committee to report at a meeting in January.—Don Fuller and Palmer Harwood, Fibreboard; G. N. Willistoff, CZ; Louis Meunier, American Forest Products Corp., and Irwin Kopp, Royal Fibre Corp.



New Thurso Mill Takes Shape . . .
This 200-ton a day sulfate market pulp mill is adjacent to Canada's "most modern and automated" sawmill and veneer plant.

1—Wood unloading
2—Log slashers, barkers, wood preparation
3—Lime kiln
4—Causticizing
5—Boiler and recovery
6—Chips, bins and digesters
7—Bleach plant
8—Stock preparation
9—Machine room
10—Warehouse
11—Office
12—Time office



And Here's Key to Process Flow When Completed . . .

The Mill That "Had To Be Built"

Pulp consumers, and Maurice R. Castagne, PULP & PAPER Eastern editor, recently toured this soon-to-be-on-stream (Jan. 1958) market pulp mill, a joint venture of Singer (70%) and Perkins-Goodwin (30%)

• For years Singer Mfg. Co. has been logging saw and veneer logs on its 560 sq. mi. of heavily forested cutting limits within a 40-mile northerly radius of Thurso, Que., some 95 miles west of Montreal. Singer's sawmill and veneer plant at Thurso uses only hardwoods for its sewing machine cabinets. Construction of a pulp mill is a move toward better integration and fuller forest utilization.

To those who question the wisdom of bringing in additional pulp in present markets, Louis Calder, Sr., president of Perkins-Goodwin, explains: "There's always room at the top and when you have so many naturals such as we have in this setup, it wouldn't make sense not to make pulp."

Some of the "naturals" Mr. Calder refers to are the existence of a well-established organization for logging, access and haul roads already in, plus a 55-mile Singer-owned railroad for hauling wood to Thurso. Sawmill residues will be used to produce pulp. The mill site, close to Montreal, is well situated for shipping to paper mills in Northeast and Midwest states and Canada. In Perkins-Goodwin, Singer has acquired an experienced partner in pulp and paper management, marketing and sales, says Milton C. Lightner, president of Singer Mfg. Co.

Average truck haul from stump to rail siding is about 12 miles. Timber comprises hardwood (60%) and softwood (40%). Predominant hardwood species are white birch, yellow birch and maple. Softwoods comprise spruce, hemlock and balsam.

"What we really have here," stresses Stan Blankinship, vice president of Perkins-Goodwin Co., "is a Southern operation. We don't have to carry any more wood inventory than we need because we own the railroad, a 12-month operation. We will keep about 12,000 cords at the mill."

Preview of Equipment . . .

When Thurso starts full production early in 1958, PULP & PAPER will present a full detailed report on its operations.

In the five-stage Kamyr bleach plant (chlorination, caustic, chlorine dioxide, caustic and chlorine dioxide), hypo stage is skipped to protect mullen, tear and fold characteristics. Olin-Mathieson designed the chlorine dioxide generating plant.

The three-stage Bauer Cleaners for bleached stock will use 366 units for primary stock, 42 for secondary and seven for tertiary.

The mill will use coal which will be siloed for dust and dirt prevention.

Pulpwood will be logged in 8-ft. lengths on Singer limits, will be cut to 4-ft. lengths on a Forano slasher. Sawlogs will be barked on a Cambio barker. Slabs will be chipped in a Soderhamn chipper and blown to pulp mill. The pulp mill will have a Carthage 22 in. spout chipper and Weldrum barker. Sumner chip screens will be used.

Wood usage, when operating on hardwood, will be 320 rough cords a day; on softwood, 400 rough cords.

Power . . .

Steam generating capacity (Combustion Engineering): The power boiler will be a 4,800,000 lbs. steam per day unit. The recovery boiler, 2,376,000 lbs. steam per day. Operating steam pressure will be 450 psi; operating steam temperature, 750° F.

Turbo generator capacity (de-Laval): will be 7500 kw, 8333 kva with a power factor of 90%. Voltage will be 2400/4160.

Water capacity: for the pump house will be 21,600,000 gpd; for the filtration house, 14,400,000 gpd. Precipitators for clarified water and filters for filtered water are by Permutit.

Six turbines (Elliott) will have a total rating of 1715 hp for the paper machine (700 hp); recovery boiler I. D. fan (226 hp); power boiler I. D. fan (326 hp); boiler feed pump (180 hp); booster pump (83 hp); and power boiler F.D. fan (164 hp).

Other equipment includes four welded 3,000 cu. ft. digesters by Horton; two Horton blow tanks; Horton Conkey six body sextuple effect evaporator; Dorr-Oliver-Long causticizing; Allis Chalmers lime kiln; Research-Cottrell precipitator; three Sherbrooke (Impco type) 8 by 16 ft. washers and vibratory preknotter and Sherbrooke turbo-flow primary and secondary screens.

All tile work is being done by Canadian Stebbins. For bleached stock: four Bird Vibrotor screens, a Jonsson reject screen, a Sherbrooke decker saveall as well as Bauer cleaners.

A 184 in. Dominion Engineering pulp drying machine, Hamblet cutter and layboy, Dominion Engineering 800 ton baling press, Mathews conveyor and Ovalstrapping wire tying are major units in finishing end. Pumps are principally by Allis Chalmers and motors and switchgear by Westinghouse. Foundation Co. of Canada are contractors.

Previewing Thurso Pulp & Paper Co. Ltd.

Leaders in New Venture . . .
From left: Milton C. Lightner, president, Singer Mfg. Co.; Louis Calder Sr., president, Perkins-Goodwin Co.; Stan G. Blankinship, vice president, Thurso Pulp and Paper Co. and Perkins-Goodwin; Paul B. Bourget, president, Thurso; Larry M. Burns, Thurso mill manager.

Consumers and Sales Reps . . .
. . . representative of group of more than 50 who toured rising Thurso pulp mill in October. From left are George Brumbacher, Jr., and George Sheets, both of Mead Corp.; Avery Feiler, Perkins-Goodwin; Russ Garfield, Ashuelot Paper Co.; Bob Van Sant; P-G; Bob Brown, Atlantic Carton Co., and David Emerson, Rhode Island Card Board Co.

A Look at New Pulp Mill . . .
All eyes are on pulp machine in paper machine building at Thurso. From left are Ried Campbell, Knowlton Bros.; Lou Calder, Jr., Perkins-Goodwin; Dave Knowlton, Knowlton Bros.; Ed Olmstead, Eaton Dikeman Co.; George Wallace, Fitchburg Paper Co., and Harold Holden, Eastern Corp.

Previewing Thurso . . .
From left are T. T. "Tad" Dunn, Union Bag-Camp Paper Corp.; Lou Calder, Jr., Perkins-Goodwin Co., N.Y.C.; John Quackenbush, P.-G., Chicago; Norman Bearse, Champion-International Co.

Special Southern Superintendent's Report

Noodle Pulp by the Truckload . . .

Simple, fast, easy to handle, East Texas trucks its nodular pulp to Orange Pulp & Paper—unloads it with a hose!

● At East Texas Pulp & Paper Co. they have found that nodular pulp is easy to make, easier to handle and even easier to transport.

Interest was high when Eastex' Ray Brown, asst. to mgr. A. G. (Buff) Natwick, described the system at this year's Southern and Southeastern division meeting of APPMSA in Jacksonville. Meanwhile, PULP & PAPER went to Texas to get an on-the-spot report of this system in action.

Going into the "noodle" business did not require much of an investment for Eastex. Basic equipment necessary: A pulp press, conveyors and pumps, six large transport trailers and two cabs.

This is an innovation for the mill at Evadale, Tex. Currently Eastex is sending its pulp to Orange Pulp & Paper Co., on the Sabine River in Orange, Tex., some 33 miles from Evadale. Orange makes about 70 tons of kraft paper per day, most of which is converted into specialty bags, grocery bags, etc.

Comments Buff Natwick, East Texas' vice pres. and res. mgr.

"Naturally we feel that the finest quality product we make is our bleached, machine-dried pulp. But for a company like Orange, whose requirements are for a high quality, unbleached stock, and which has the necessary refining equipment, we feel this is an excellent product. We've been very pleased with this operation, especially with the ease in handling it."

Described "Noodle" Process...

. . . Ray Brown, asst. to mgr. of East Texas Pulp & Paper, shown here with Mrs. Brown, gave details of nodular pulp process at session.

The Zenith Press . . .

Nodular pulp is made at Eastex in a Jackson & Church Zenith press located outside and adjacent to the pulp mill. A Transite corrugated roof protects the machine which is located on the third floor of a steel structure. The loading docks for the pulp are directly below the machine.

"Noodle" pulp is a high density pulp consisting of approximately 60% water and 40% pulp. Shooting out of the press, it has the appearance of a duffer's golf ball after about 36 holes of golf.

Unbleached stock is supplied by a Bingham pump from the screen room storage chest to the press. A Reliance Electric & Engineering drive pushes the big press. The noodles fall by gravity to a screw conveyor below. The main conveyor transports the pulp out for delivery to any one of three other screw conveyors which then distribute it to different bays. These conveyors then discharge the "noodles" into open top trailers which are parked below them.

During operating hours, a shuttle system is used to make delivery of the nodular pulp to Orange. Six trailers are used, two spotted at the press, two at Orange, and two on the road. Only two cabs are needed to haul the transporting trailers.

Hosing It Down . . .

Unloading the big trailers of pulp is also a simple matter. At Orange the noodles are washed out of the trailers, with a high pressure water hose, into a conveyor which transports it to a repulper. It is then pumped into the machine room for conversion into paper bags. Each of the trailers has a capacity of about eight bone-dry tons of noodle pulp. The round trip to Orange takes about two hours.

Total delivery from this unique system to the door of the mill at Orange is about 50 bone dry tons of pulp a day.

On Top Of Other Subjects . . .

There were other topics discussed at the Jacksonville meeting which PULP & PAPER was "on top of," too. Hardy Croom, asst. technical dept. supt. at Owens-Illinois' Valdosta mill, gave an excellent report on "Four Years of Waste Treatment" at Valdosta, a subject treated exhaustively by PULP & PAPER in April, 1956, page 114. Jack Meadows, asst. to mill mgr. James Hair at Crossett Paper Mills, described Crossett's use of chips from sawmill waste. (See "How Utilization Works At Crossett," Oct., 1956, page 116.) And Harold Dahlberg, of F. C. Huyck & Sons, discussed cleaning papermakers' felts, a problem investigated in "How Southland Revamped With No. 3," PULP & PAPER, August, 1957.

A Problem For Everyone . . .

Dean R. J. Preston of North Carolina State College's School of Forestry was on hand to describe the industry-supported pulp and paper program at N.C. State (See "N.C. Paper School Looks To Future," May, 1956, page 138.) Dean Preston called for help in "recruiting students for the school."

Said Dean Preston: "You all can help us find suitable students for this

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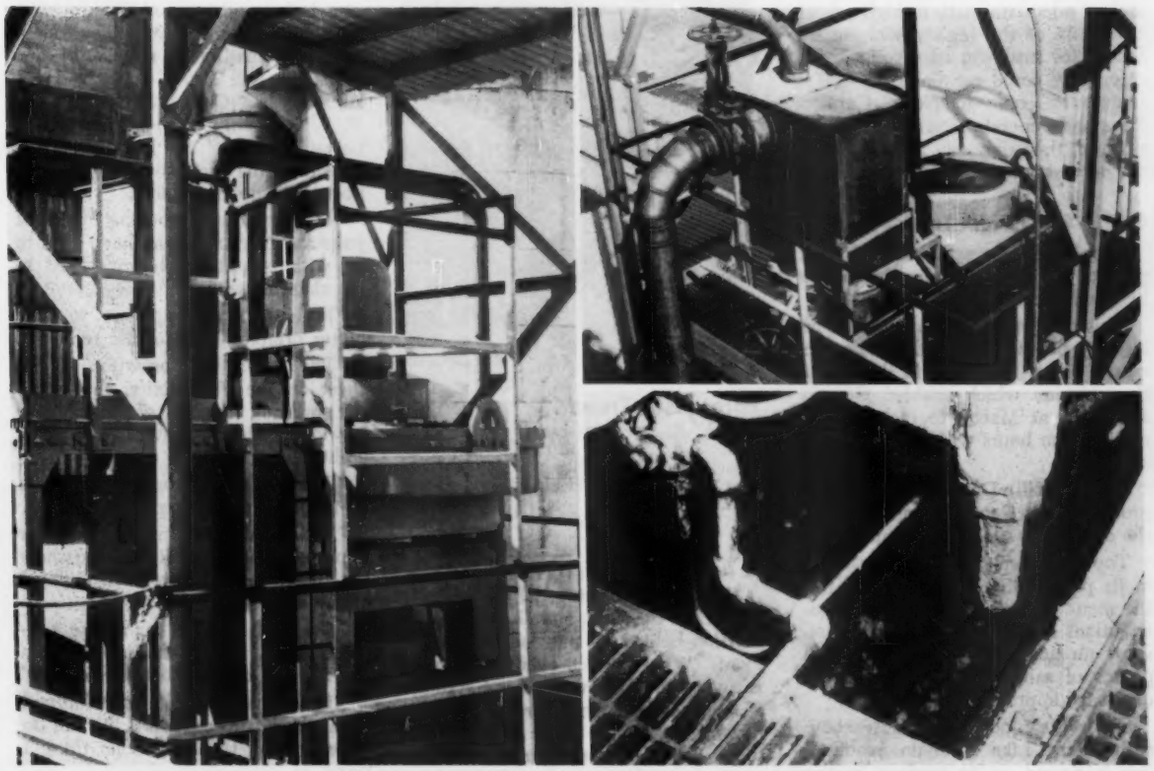
From Jax to Evadale for Story

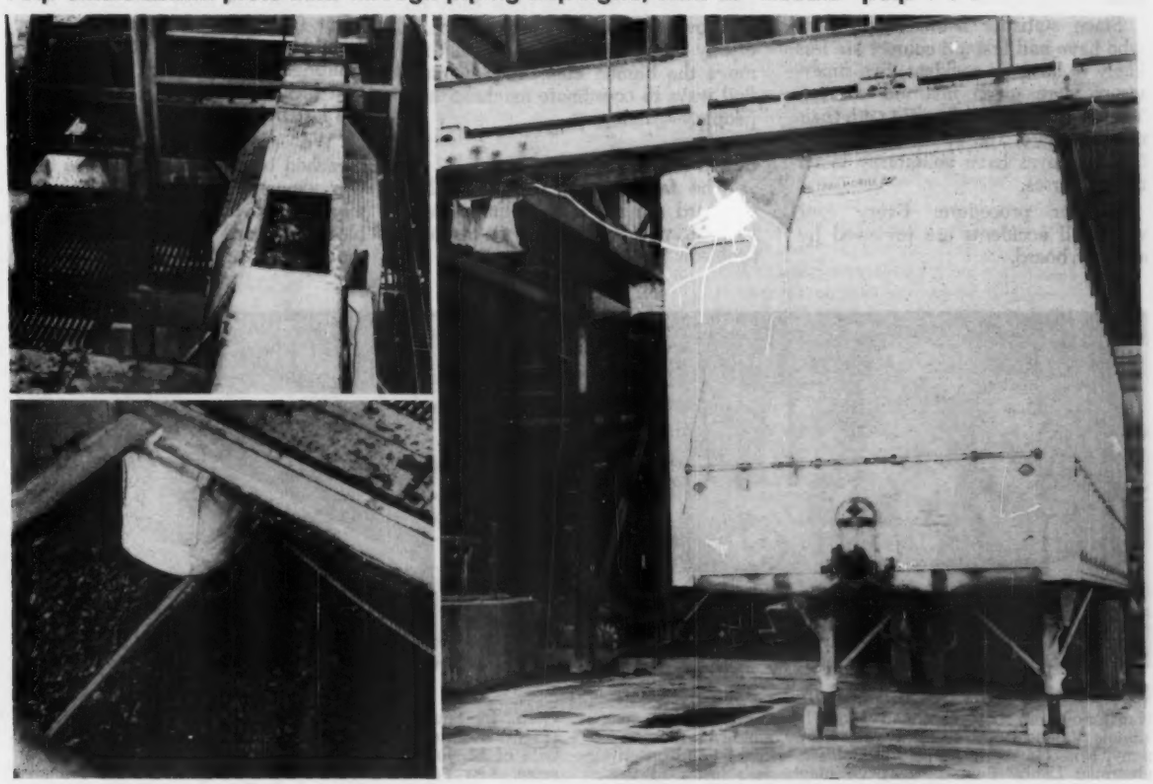
PULP & PAPER brings its readers coverage of important developments at the Southern and Southeastern Superintendent's meeting, held this year at Jacksonville . . . plus a bonus on-the-spot story and picture coverage of East Texas' noodle pulp set-up, subject of one of convention's most talked-about papers.

See PULPWOOD SECTION for a report on hardwoods outlook in South—also given at Jacksonville. These reports are by William F. Diehl, Jr., PULP & PAPER's Southern editor.

Views of Noodle Pulp Operation at East Texas Mill



Pulp enters Zenith press (left) through piping (top right), exits as "noodle" pulp . . .



Then cross-conveyors (top left) drop pulp into heavy duty trailer trucks for delivery.

school. One of our big problems is lack of adequate math in high school. Only 10% of the high schools in the South, for instance, offer solid geometry. If we could get juniors as well as seniors to come to North Carolina State and generate interest in our curriculum, then they can arrange to get the necessary math courses."

Safety Starts From Top . . .

"You've got to sell safety to your people, the same way a salesman sells his product to you."

This one sentence sums up the philosophy behind one of the most successful safety programs in the South, the program which enabled Georgia Kraft Co. at Macon to rack up two million man hours without a lost time accident.

W. D. (Bill) Davey, asst. mgr. of production at Georgia Kraft, explains the company's success like this:

Top management must be sincere in its participation. At Georgia Kraft the men "upstairs" see to it that contributions are made to back program, show an active, vital interest in all phases of safety, are quick to make necessary improvements.

Supervisory personnel must show enthusiasm. Like a chain reaction, this is passed on to workers in the mill.

Since statistics show that people who have had first aid courses are less likely to have an accident, five supervisors were given first aid courses. They in turn discuss first aid with their men. To date, 160 of Georgia Kraft's 650 employes have voluntarily taken these courses.

Another procedure: Every four weeks all accidents are reviewed by a safety board.

Foresees A Trend . . .

. . . E. E. LEPTIEN (seated) of St. Regis Paper Co.: "We're using 300 tons of bleach board for printing a month. Last year that much would have lasted us all year. . . ."

Is Pushbutton Age Oversold?

Charles A. Bicking, of Carborundum Co.'s Research and Development division believes it may be. His comment: "What we will eventually have is a very carefully worked out system of methods between control and manpower. There has been evidence in some places, where complete automatic controls were installed, that men came to work an hour early on their own time just to start up machinery by the old methods. You can't remove the human element. You must find ways to coordinate machines and people."

Board Printability

"The factors affecting printability of board are about as nebulous and hard to put your finger on as any problems in the paper industry."

This was comment by one panelist at a Jacksonville session. The topic investigated by moderator Glenn Ralston of Owens-Illinois, and W. B. Simmons, St. Joe Paper Co., Dr. H. J. Allison, Jr., Container Corp., and E. E. Leptien, Superior Paper Products Co., div. of St. Regis: "Factors Affecting the Printability of Linerboard." Some viewpoints:

"Factors in the cooking cycle of pulp for linerboard may have a lot to do with printability but it's hard to pin them down."

"Jordan refining appears to give better printability than disc refining."

"The better the formation of the sheet on the Fourdrinier, the better the printing quality of the board. Lower speeds, too, give better printability."

"Percentage of secondary stock has an influence on sheet printability."

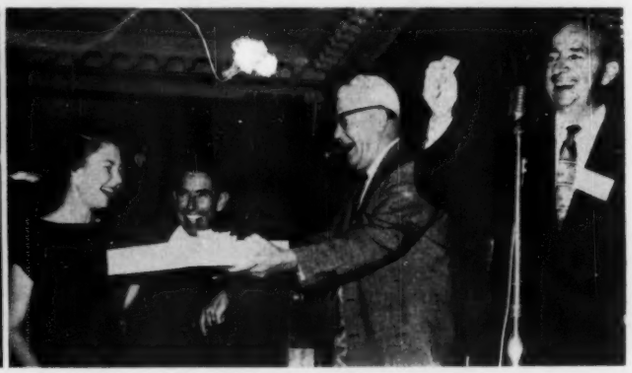
"Additional nips in the calender improve printing quality of the sheet but, then, they also weaken stiffness of the sheet."

"The ideal box, as far as the boxmaker goes, is one that doesn't use any ink and doesn't cost any money."

"If the papermaker knows what end result the boxmaker wants, he can do more for him than any other thing I know."

Perhaps the most significant comment from the board concerned the trend toward bleached board for color printing. One panelist pointed out that bleached tonnage has doubled in the last three months.

"We are using 2500 tons of bleached board a year from one mill. Our demand is about 300 tons a month. A year ago, 300 tons of bleached board would have lasted us the whole year."



Happy Moments at Convention . . .

(Left) Southern Div. chairman Jake Hayes, mgr. of Owens-Illinois' Valdosta mill, seems awfully happy. Could be the company, Mrs. Hayes, left, and Pat Boinest, wife of Southeastern chairman Lebby Boinest, right. Or maybe he's just glad the tenure of duty is over. New chairmen, J. D. Dailey, Riegel-Carolina, for Southeastern, and Franklin Jones, of Container Corp., for Southern div., took over at end of meeting.
(Right) Brightest moment was here, when Mrs. Tom Coldewey, wife of St. Joe Paper Co. v.p., drew her own name for door prize. Ken Youngchild, newly elected sec.-treas. of affiliates group, reads off the ticket as Jack Chandler, A.P. Wageknecht, look on.

A Corrosion Specialist's Views on TAPPI Sessions

Comments on four papers and panel discussion of case histories at Cincinnati Engineering Conference, written especially for PULP & PAPER

By EDWARD W. HOPPER

Specialist in Metallurgical and Corrosion Problems*

"Surprising Results" . . .

Richard B. Kesler, Research Aide, Institute of Paper Chemistry: "Corrosion of Mild Steel in Alkaline Pulping Liquors. Part I, Kraft White Liquor; Part II, Neutral Sulfite Cooking Liquor."

The papers covered research and laboratory studies aimed at determining factors responsible for corrosion. Polarization curves and weight losses were presented and interpreted with controlled changes in the liquor composition. In Part I, the authors, Mr. Kesler and James P. Bakken, found that "sodium carbonate, chloride or sulfate, should inhibit the corrosion of mild steel in kraft white liquor."

The results indicating that sodium chloride acts as an inhibitor are surprising and should be checked further.

In Part II, Mr. Kesler found that "Negligible corrosion occurs above pH 10. Definite corrosion begins between pH 10 and pH 9.5, and increases in intensity as the pH increases."

He pointed out that the tests indicated that anodic protection of digesters was a distinct possibility as well as cathodic protection which has already been utilized. The use of either method of electrolytic protection should be studied carefully before installing as they could lead to serious attack if not properly installed and controlled.

It should be remembered that these papers are laboratory studies where certain variables were studied. Other factors during cooking may tend to increase or decrease corrosion rates. This type of basic research can be very valuable in pin pointing factors which can affect rates of attack.

For Ammonia Cooks— Titanium . . .

Dr. Lyle C. Jenness, head, dept. of chem. eng., University of Maine: "Corrosion of Stainless Steel, Titanium and Titanium Alloys by Ammonia Base Sulfite Liquor."

Presented results of corrosion studies on these and other alloys in laboratory and commercial digesters. The tests indicate that titanium and titanium base alloys have excellent corrosion resistance to the liquor in question. Type 316 stainless showed a higher rate of attack but still is in a range suitable for many service conditions. Stainless type 302 ranged from good to pitted while type 347 showed severe attack. Specimens of copper and nickel alloys, including Inconel, failed at an early stage and were removed from the test racks.

"Corrosion Rates Decrease" . . .

H. M. Canavan, chief inspector, Boiler Div., Mutual Boiler and Machinery Co.: "Current Status of Alkaline Digester Corrosion as Reported by Regional Digester Group."

Reports from 30 mills covered 229 carbon steel, stainless and inconel lined or clad, carbon brick lined, and stainless overlayed carbon steel digesters. They indicate corrosion rate on carbon steel digesters has decreased and many mills are taking steps to prevent or reduce attack. Corrosion in the alloy clad or lined digesters is much lower than on carbon steel digesters. Results with stainless overlay protection appeared satisfactory. A table compared thickness results obtained by using the Audigage and Vidagage instruments.

Case Histories . . .

A Panel Presentation: W. A. Rodowski, D. M. Bare Paper Co., Roaring Spring, Pa., moderator.

Louis K. Keay, Lukens Steel Co.: Application of stainless clad steel in recovery furnace stacks at three mills. In all cases some pitting was reported. In one case, carbide precipitation from the heat of welding of the ladder supports, lowered corrosion resistance of the 316 stainless steel so that severe attack developed in these areas. The discussion brought out the fact that some mills are using carbon steel stacks successfully, and that at least one concrete stack has had the top removed due to attack on the concrete.

E. H. Schmidt, A. O. Smith Corp.: Kraft digester corrosion where design and other factors contributed to attack.

F. E. Hutton, Babcock & Wilcox Co.: Use of low carbon steel, chrome alloy, and chrome-nickel alloy tubes in high temperature boiler tube service. Tests were carried out under conditions more severe than those likely in actual service. At higher temperatures, the chrome-nickel type 304 stainless appeared to be the best material.

Conclusions: Discussions brought out that condition. vary and materials of construction do not give uniform service from plant to plant. Corrosion problems must be considered at each location and factors in environment studied before an intelligent recommendation can be given on proper material for use.

The committee chairman, S. J. Baisch, of Thilmany Pulp & Paper Co., made the statement that it is becoming more apparent that every mill needs the services of a corrosion engineer or should appoint a technically trained person to follow the corrosion problems.

Aluminum . . . in Some Places . . .

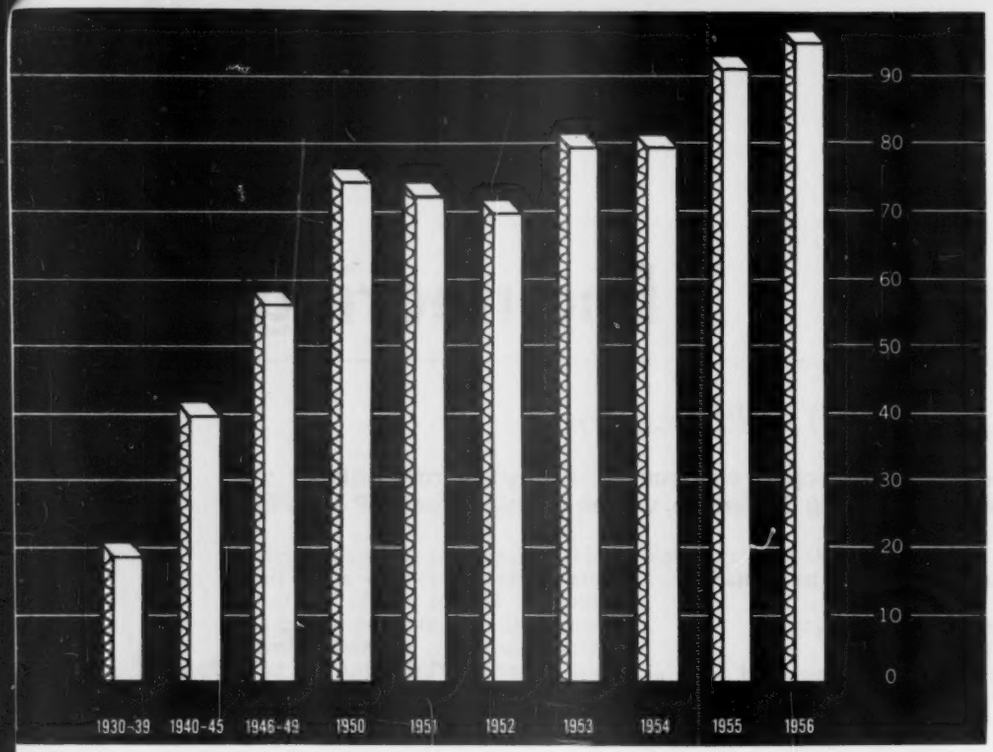
Harry W. Fritts of the Aluminum Co. of America: "Aluminum Applications in Pulp and Paper Industry."

The survey lists specific applications where aluminum alloys have good corrosion resistance. As is the case with all metals, there are service conditions where aluminum alloys are not suitable.

One of Longest Safety Records

Port Townsend, Wash. mill of Crown Zellerbach Corp. ended one of the longest safety records in the industry this fall, 3,230,898 consecutive man-hours, a 750-day period, without a lost-time injury. A millwright cracked a rib while trying to extract a tube of belt dressing from a live paper machine belt.

* Mr. Hopper headquarters at 905 Union Trust Bldg., Pittsburgh 9, Pa. He wrote the article "Kraft Mill Extends Digester Life" on successful use of overlays to repair kraft digesters in Sept. 1957 issue of PULP & PAPER. He is consultant for West Virginia Pulp & Paper Co., J. F. Pritchard & Co. and others. With Dr. Colin G. Fink he developed the first electrolytic tin strip tin plating process. He attended Columbia U. and Pratt Institute.



From A Baby to a Giant . . .

Growth of U. S. corrugated industry shown in billions of square feet.

Corrugated Containers Keep Growing

Topics featured in this report also include plastic dies (the coming thing); high speed gluer-folders; starches vs. silicates, and a new balanced cut-off knife . . .

By MAURICE R. CASTAGNE
Eastern Editor, PULP & PAPER

• What's behind the remarkable growth behavior charted above? And why did the subject of corrugated containers draw more than 500 to TAPPI's 7th Annual Corrugating Containers Conference in Philadelphia in October?

Some say the success of corrugated containers is because they are cheap, strong, give good protection in transit and handling, stack well—and are a very profitable operation.

The packaging industry as a whole is reportedly a $5 billion a year business. Corrugated containers shipments were at the $1.5 billion level in 1956.

Closely paralleling this growth boom is the use of semichemical pulp in corrugating materials, which at one time in statistical compilations was included under "other" category but now outnumbers kraft, straw and "other" combined. In 1956 some 1,426,200 tons of semichemical were used, 239,800 tons of straw and 86,500 tons of kraft.

In liners, kraft still is the big factor, amounting to 3,895,000 tons of the total 4,646,800 tons used for this grade.

Interesting is the growth of kraft Fourdrinier linerboard from an estimated 4,600 tons in 1925 to more than 3,762,300 tons in 1956. Cylinder kraft board is around 132,700 tons.

Better Containers . . .

The dull, drab stare of the blank, unprinted fiber container has fast given way to the traveling billboard look. More and more manufacturers are becoming acutely sensitive to the shipping container as an ideal, low cost advertising medium as it makes its way from factory to consumer.

As this trend to quality printing, using sometimes four colors, accelerates, corrugators are coming up with new developments, new processes.

One of these developments with possible far reaching impact is the plastic printing die. At Philadelphia die manufacturers and corrugated men said plastic plates are the coming thing for corrugated containers because the latter have an uneven surface. Plastic fills that unevenness.

Plastic printing plates have a better affinity for ink (pick up less ink, still give better impressions). Ink consumption goes down as the quality of printing goes up.

Pre-Printed Liners . . .

The use of rotogravure printing for corrugated cases and pre-printed liners with registered cut-off at Fibreboard Paper Products Corp. was described by Al Shade, project mgr.—containers. The market for this type of product is limited mainly because of rotogravure costs and rotogravure limitations. Original press plates, for instance, were around $4,500. New cylinders must be purchased for any insert changes.

Fibreboard applied lacquer over their four-color jobs to seal the surface so that inks would not rub when softened by heat and so that hot plate surfaces or abrasive material on them will not scratch the printed areas.

"We expect total sheet waste could be held within 2% on the rotogravure operation plus 4% on the corrugator. Operating cost of the rotogravure equipment is $60 to $80 per hour and speeds range from 400 fpm to 600 fpm. Ink costs are about one third higher than normal letterpress inks.

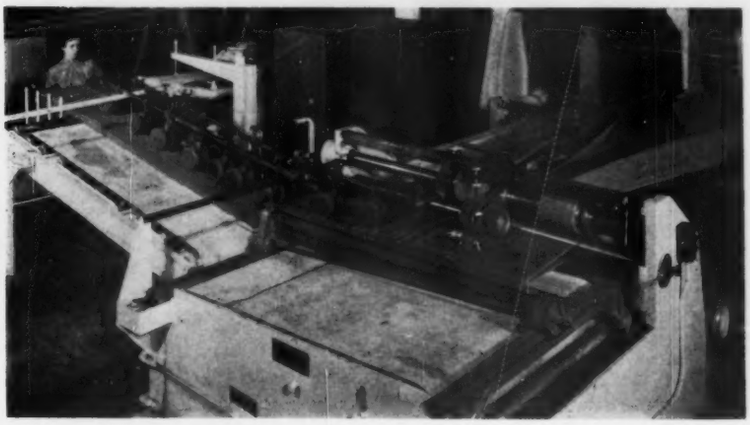
The corrugator register control equipment has three separate units: a revised drive arrangement, knife register control and side to side or slight register control.

The knife control scanner is an electric eye mounted below the sheet so that its beam is cast upon a continuing series of pre-printed register marks spaced at uniform intervals upon a continuing series of pre-printed on either the top or bottom flap areas of the sheet. Any number of knife control register marks may be used with a minimum of one mark per sheet or per cut to be made.

The side register controls consist of a transverse adjustment on the slitter unit and a rotary lens electric eye. The slitter is a duplex type in which two

pairs of shafts revolve from top to bottom. The entire revolving section moves from side to side at a speed of 1.5-in. per min. upon receiving the impulse from the scanner.

The scanning instruments used are described in General Electric Co. bulletins GET 2411A Photoelectric Scanning for Register Controls; GEI 42534 Photoelectric Two-Way Cut-Off Register Control System and GEH 1736A Rotary Lens Side Register Control.



The Bostitch Equalok . . .

Most Talked About Development was the . . .

High Speed Gluer-Folders

Corrugators agree this is something they have needed a long time. It was only a few years ago that these units were discussed in hush-hush tones. Now the secrets are out and the Philadelphia meeting discussed actual operating experiences with several models.

Roscoe H. ("I'm in favor of the glued joint box") Bowers, vice president in charge of production and engineering, Connelly Containers, Philadelphia, told why his company owns three Bostitch Equalok high speed (18,000 to 20,000 cartons an hour) gluer-folders.

(Incidentally, this switch is making gummed tape manufacturers unhappy; they are countering with improved products and new uses.)

"From previous experience with glued joints we decided to invest heavily in use of the Equalok because the machine was available, was relatively simple, slotting and scoring were included, squaring was accomplished against resistance of the folded scores only, identification printing was available and boxes were delivered in squared counted piles which allow tying one string by one man at maximum production."

How It Works . . .

The Equalok folder-gluer automatically feeds, scores, trims glue tab, slots, crushes glue tab and edge of fourth panel, trims fourth panel, removes trim, prints identification and class stamp, applies glue, squares, counts and compresses sack of finished boxes. Maximum speed: 18,000 to 20,000 boxes per hour.

Connelly Containers ships an average of one million boxes a week; has shipped more than 36,000,000 boxes glued on Equaloks.

"It is still an infant in its second year," summed up Mr. Bowers. "Deluxe models could incorporate adjustable feed table, double open-up features for easier set-up and for extra one to one for hand-holes, etc."

Another Glue-Lap Machine . . .

. . . was described by A. Richardson, Gaylord Container Corp., Div. Crown Zellerbach Corp. These are the features they asked from Universal Corrugated Machinery Corp.: A belt folding section; apply the glue near the feed table; improve the right angle squaring section; provide scoring wheels, provide speeds up to 300 per min.

Some complaints listed by Mr. Richardson, on all machines of this type, include excessive clean-up time, difficulty in preventing slinging of glue, poorly designed glue feeding mechanisms to glue pot.

Interesting features: Leaving the belt folding section, the box enters a right angle suction belt section. To get sufficient friction between the box and the belts for a rapid right angle movement, a belt containing small holes was used. Beneath it is mounted a blower which draws air through the belt creating an air pressure on top of the box blanks forcing them against the suction belt. This grips the box and moves it at right angles as rapidly as desired.

Interesting on delivery end is use of a spray of water onto the leading flap of every 20, 25 or 30 boxes as a count. The water mark is easily seen by the inspector, yet leaves no permanent mark on the finished product.

Normal operating speed on the Universal machine varies from 150 to 250 cartons a minute. "This speed is very definitely controlled not by the machine limits but by the ability of our bundling and taking off from the machine," said Mr. Richardson. "We have run boxes at 550 per minute satisfactorily. But under present conditions you cannot continuously feed or take off at 550 boxes a minute. We will see glue lap machines operating at speeds we now consider utterly fantastic."

A Word of Caution . . .

To those contemplating use of high speed folder-gluer operations, Mr. Richardson pointed out, "You may expect more than the normal amount of resistance from people that you put to run these machines since they quickly grasp that this machine can considerably reduce man-power in the finishing department.

"You may also find that to make the operation of these machines successful, you are going to have to upgrade the general quality of the material being fed to that machine. I mean that the board must be flat, free of mashing along the critical areas, free of any stuck sheets from excessive ink and mis-feeds from the press must be thrown out at the press. I consider these machines difficult to get into production and bring up to expected operating levels, but certainly the results are worth the efforts."

Automatic Bale Pack . . .

. . . is one answer designed by Acme Steel Co. to answer corrugated men's complaint: "You can't run gluers at high speeds because it takes too many people to handle them." Present system is to hand tie folded cartons as they come from gluers.

How Acme's model works: Indexing mechanism (rotary unit at left) takes output of gluers, feeds them onto conveyor which rates cartons into compressor. Vibrating unit on conveyor bed keeps bundles aligned. Steel strap which has been previously fed into press is applied to cartons; corner protectors are held in a hopper.

Only one strap is needed. Strapped bundle is then upended to delivery

conveyor which in turn upends bundles for pick up by fork-lift truck. Total elapsed time: 30 to 40 seconds.

Said one mill man, "This is a step toward in-line operation where we go directly from the press into the whole operation. I also like the fact that it's automatic. Eliminates training problems. It is also complementary to a present piece of equipment in speed. It's compact and has flexibility built in at each end."

Starches Vs. Silicates

In the early 1900's, silicates were king of the corrugated box field. But they had some disadvantages such as dusting which stuck to the machines, was hard to remove. It was then that starch began to move in. (Today the corrugated industry reportedly uses something like 2 billion lbs. of adhesives, said one mill man.) About 200 million lbs. of starch is used by containers plants, it was reported at Philadelphia.

Silicate people have made improvements, are making a comeback. One manufacturer has come up with a versatile silicate adhesive which is said to be free of washboarding, less abrasive, causes less dusting, completely self-releasing without any scraping from plates and belts in most plants. In other plants it can be easily removed during normal downtime.

Balanced Cut-Off Knives . . .

The development of a rotary cut-off machine that will provide accuracy of cut, hoped for by every scrap-conscious boxplant, was revealed by J. P. Haas, manager, technical dept., Koppers Co., Inc. (Eds. Note: in 1955 the F. X. Hooper Co. became a unit of Koppers.)

The machine, still in prototype stage, operates "very nicely on a regular production schedule and we feel our goal is now within reach," said Mr. Haas.

The Problem . . .

. . . he explained, is to get the machine to cut the board accurately into sheets of many sizes. When the blades meet to cut the board, they must travel at the speed of the board, regardless of sheet length.

"On the other hand, it is obvious that time elapsing between two consecutive cuts determines the length of the board going through the machine, and therefore determines the sheet length. As a result when very short sheets are wanted, the rolls must speed up after the cut is made, then must slow down for another cut, then speed up and slow down again before the next cut. When long sheets are desired, the process is reversed.

"With our new machine which was designed to cut 30- to 180-in. sheets, it takes a mere variation of 1/20 of 1% of the speed ratio through the variable speed unit to add 1/16-in. to the sheet length when the machine is set to cut 180-in. sheet.

"We decided to eliminate entirely the torque fluctuation through the variable speed drive. It is possible to neutralize this fluctuation if a harmonic or sine curve mechanism is used to accelerate the rolls. The fluctuating torque transmitted through the variable speed drive can be balanced exactly by adding to the roll-accelerating mechanism a duplicate mechanism which acclerates and decelerates a flywheel. By operating the two mechanisms in tandem with the proper difference of phase, the drive torque can theoretically be reduced to zero.

Some features: Low hp requirement, high accuracy of cut, accesibility of knife blades, variable speed drives are in open for maintenance ease.

What's ahead . . . Koppers is working on an improved control system. "Now that we know that the speed ratio of the variable speed drive remains very steady when the torque does not fluctuate, we are certain that we can go to a fully automatic control without jog buttons. We also believe that with a balanced knife of this type it will be possible to use pre-printed liner in the corrugator."

Previewing Idea . . .

. . . designed to eliminate bottleneck at end of high speed gluer-folders are (from left) C. S. MACNAIR, Acme Steel; KED MARTIN, Ft. Wayne Corrugated; WILL BALSTER, The Don L. Quinn Co. (consulting engineers); HENRY OSTROWSKI, Hinde and Dauch (formerly of Powell River Co.); WILL COLLINS, Acme and HERB SMITH, Acme.

New Multiwall Bag Being Made at Valdosta

A new type of multiwall paper bag developed by Owens-Illinois Glass Co. is being manufactured at its Valdosta, Ga., mill.

Main feature of the new bag is a pasted valve reducing insert that permits standardization of pallet patterns regardless of the density of the packaged product. The bag lends itself more readily to high-stacking, thus making more economical use of space in boxcars, trucks, and warehouses.

The valve reducing insert now makes it possible to make a bag of standard length and width—but with a thickness when filled that may range anywhere from 3½ in. up to 6½ in. Valve size is not changed.

The capacity of the bag is varied to suit the properties of whatever is put in it, without altering the two dimensions that govern pallet patterns. It is being used for chemicals.

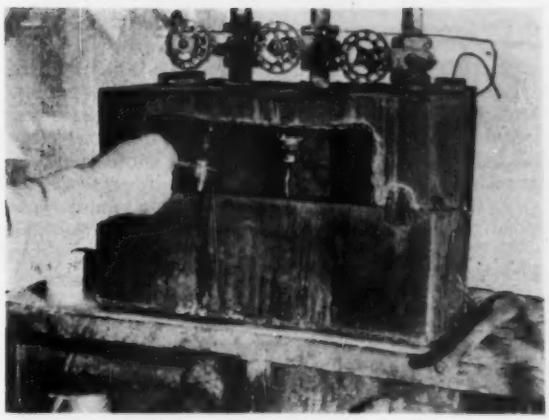
Customers may specify whatever size valve reducing insert he needs.

The insert is designed and applied to the bag so that a tight, self-sealing factor is added, insuring against costly spillage. The bag is compact and easy to handle. The old bag, being long and thin, sagged at both ends if picked up in the middle, or buckled in the center when picked up at both ends. The new bag is three-ply, using two 40 basis weight sheets and one 50 basis weight sheet of natural kraft.

Danger—Handle with Care!

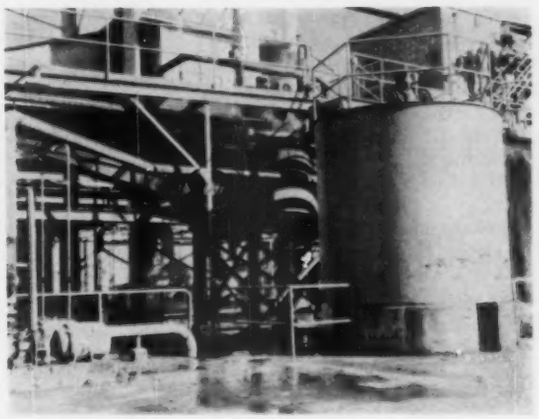
. . . Chemicals used in pulp manufacture can injure or kill. These three papers presented at National Safety Congress, Chicago, Oct. 22 discuss the hazards and what to do about them in:

1. *Making alkaline pulp liquor*
2. *Cooking and washing pulp*
3. *Bleaching pulp*



Sample Sink Runs Continuously

Danger of clogged lines resulting in an explosion when valve is opened to secure a sample is removed by this sample sink in the control room at Mead's Chillicothe div. mill. Drain pipes discharge into the third causticizer.



Guard Rails Keep People Out

Slotted pipes convey material between causticizers at the Chillicothe mill. Guard rails keep people from walking between tanks and possibly being splashed by chemicals.

1. Three Dangerous Chemicals Make Alkaline Pulp Liquor . . .

. . . Calcined Lime + Soda Ash = Caustic Soda. Principal hazard is from lime or caustic soda burns . . .

By BOOKER P. BUNCH
Tech. Asst. to Production Mgr. Chillicothe Div., The Mead Corp.

● In the liquor making plant we react calcined lime with soda ash to produce caustic soda (sodium hydroxide), a strong alkali and very active chemically. The principal hazard is contact of the skin or eyes with caustic soda. Other chemical hazards are lime burns due to lime dust slaking in perspiration on the skin, and dermatitis due to handling lime and/or soda ash.

In most re-causticizing plants, a solution of caustic soda has an amber color, a smooth soapy feeling, and a bitter taste. In all phases of the operation the temperature of the solution is close to boiling point. In contact with the skin it can produce serious burns which usually heal very slowly unless given prompt attention. Caustic soda does not, however, give any warning of its presence by a burning or stinging sensation at the onset as one might expect. The portion of the skin that has come in contact with caustic can be severely damaged or literally "eaten away" before one is aware of it. Caustic is particularly damaging to the eyes. The use of safety goggles, therefore, cannot be stressed too strongly.

Fundamental First Aid . . .

Let's go over first aid for caustic burns:

1. Immediate attention is necessary. Even the smallest delay increases the severity of the burn.

2. The affected area should be flushed with *large* quantities of fresh water. This action is of prime importance—in case of eye injury it should be continued for 15 minutes. Due to heat liberated when caustic solutions are diluted slightly, sponging or blotting the area with damp cloths or the like may actually increase the seriousness of the burn.

3. Never attempt to remove or pull away the injured tissue, especially around the eyes.

4. Report to the plant hospital—any burn can become serious.

Many companies recommend chemical neutralizing agents, which, in the case of alkalies, would be weak acid solutions; such as, acetic acid, vinegar or boric acid. We leave this phase of treatment to the discretion of our plant nurse or physician and prescribe that first aid in the field be limited to irrigating the affected area with large amounts of water only.

All areas where caustic is handled should be equipped with safety showers. These should be fitted with a quick opening valve operated by pull chain or foot pedal. The shower should be operated from time to time

to make sure it is working. At Chillicothe we have two such showers, one in the re-causticizing area near the slaker, the other on the charging floor of the digester room. Signs should designate the location of the safety shower, for while the operator certainly knows its location and purpose, newcomers in the area, such as maintenance and clean-up men, may not.

Protection from Lime . . .

Lime is one raw material used in producing caustic soda. It is usually fed into the slaker in pebble form; however, dust is always present. The presence of lime dust can be discomforting and dangerous in several ways.

When lime slakes in water it is an exothermic reaction, which is to say, the reaction creates heat as it progresses. When lime dust comes in contact with those parts of the skin that are moist from perspiration or other causes, the slaking action occurs here just as it does in the reaction tank with water.

Workers should thus wear tight fitting clothes, long sleeve shirts, gloves and a cap. Most lime unloaders at our plant wear a handkerchief around their neck. A dust respirator is standard equipment.

Most Hazardous Area . . .

In the slaker, where dissolved smelt from the recovery furnace is reacted with calcined lime to produce caustic soda, the temperature is maintained close to the boiling point. Considerable heat is liberated when the lime slakes in the green liquor solution, and almost simultaneously heat is generated when the reaction occurs between the green liquor (sodium carbonate) and the slaked lime (calcium hydroxide).

The temperature in the slaker is usually controlled by regulating the temperature of the green liquor solution going to the slaker. The slaker will boil over from:

1. Unbalanced lime and/or green liquor flow.
2. Green liquor temperature too high.
3. Having slaker agitator stop and thus having a localized concentration of lime (remote possibility).

Because any unbalance between green liquor flow and the lime feed can cause a serious boil-over, it is important that these two be interlocked. We experienced a serious situation because this was not done at Chillicothe. The green liquor pump kicked out, but the lime feeder continued to pour lime into the slaker until the slaking action became so violent the mixture blew back up the feed slot spraying the surrounding area with hot calcium hydroxide. Fortunately, the nearest thing to a burn was our red faces when the boss found out what we had been doing.

Because the possibility of the slaker boiling over is ever present, the area around and under it should be posted. This is the most hazardous area in the re-causticizing plant.

Further Precautions . . .

From the slaker the mixture flows into causticizers. Because of the scale forming tendency of the mixture in closed pipe lines, open troughs or slotted pipes are usually used to convey the material from one causticizer to the other. Here the danger of spills or splatter is also ever present and guards and signs are recommended.

From the causticizers the chemical mixture is pumped into a clarifier. Operation of this unit is usually trouble free, with the major hazard being drips from leaks. Operators soon find out that caustic soda attacks wool and leather rather seriously. Recommended apparel is rubber shoes and cotton clothing. A wide brim hat protects the neck and face from overhead leaks. Safely goggles and gloves should be worn by repairman.

Before repairman start work in the causticizing area, the supervisor should make sure that all persons involved are aware of the hazard. Tanks should be thoroughly flushed before workmen enter, and pipe connections should be broken with considerable caution.

When work has to be done in a tank, the main control device for any agitator should be tagged or locked out and tagged; and any employes going into the tank should wear a life line or rescue harness. Workers should check their clothing for signs of caustic attack afterward. All extension cords used in tanks should have rubber or other insulation.

Bunch ..... Matzenger ..... Hill

Chemical Hazards Their Topic

BOOKER P. BUNCH, tech. asst. to prod. mgr. Mead's Chillicothe, O., mill; and CHESTER MATZENGER, JR., safety supervisor, International Paper Co.'s Mobile, Ala., mill and D. V. HILL, safety director, Mead's Kingsport, Tenn., who was chairman of session.

2. Any Chemical that reduces Chips to Pulp Is Dangerous . . .

. . . Even though low concentrations are used, hazards exist and precautions are essential . . .

By MALCOLM D. PINEO

Director, Tech. Services, Brunswick Pulp & Paper Co.

● A few years ago an instrument engineer for a supplier of automatic cooking controls and I were trying to evaluate advantages of automatic steaming and relief system for cooking pine and hardwood by the kraft process. The installation was being altered to provide for temperature rather than pressure control. Some welding had to be done on the digester shell to place a thermometer well at the control point. Standard safety regulations prohibit any welding within the digester system while cooking pine because turpentine vapors distilled from the wood might ignite.

Although all safety measures recognized were exercised, the localized heating of the shell ignited the residual turpentine fumes and caused a violent explosion. The visiting instrument engineer was enjoying the cool breezes by sitting on a window ledge at the operating floor. The digester cap

Pineo on Pulping Hazards

Mr. Pineo, director of technical services, Brunswick Pulp & Paper Co. and veteran of Scott organization—half owners of Brunswick—prepared paper for Chemical Hazards session.

was off and the blast just about blew him from his perch, some 90 ft. above the ground. Had he missed the sill, he would have been critically injured. As it was, a few days in the hospital put him back on his feet.

So even when a dangerous situation is recognized, it is not certain that safety will prevail. In this case, an investigation showed clearly that turpentine fumes can be drawn into the digester from a foreign source and precautions should have included placing blanks in all connecting pipe lines.

An Exception to the Rule . . .

In my opinion no real chemical danger exists in pulping. There is one exception to this premise, and it is not confined to cooking and washing operations. It exists throughout the kraft industry and in other chemical operations. A few months ago a pair of men were repairing the valve seat at the bottom of the cylindrical storage tank in one of the larger chemical plants. The top was open and the tank was empty. The accepted practice of one man staying on top while the other man descended into the tank was followed. The man inside the tank was making the repairs when without warning he slumped to the bottom of the tank. His buddy called two other workmen for help, then went to his aid. When the other two men reached the top of the tank they were horrified to find not one prostrate form at the bottom but two. Quickly a third men entered the tank and it was not until he too slumped down unconscious that the procession was stopped. The fourth man summoned more help and eventually the tank was cleared of bodies. All three men were dead.

An inquiry showed the cause of death was hydrogen sulfide, a chemical very common to the kraft industry. It is readily detectable as it is the predominant odor of rotten eggs. The danger is that smell sense is quickly deadened after the original reaction. The weight of the gas causes it to collect in the bottom of tanks and other vessels. Death comes from asphyxiation.

What's to Be Done?

Very simple. First, a life line is in order. Second, there are simple methods of determining its toxicity. Third, bravado has no place.

Another instance of hydrogen sulfide poisoning occurred at Brunswick. An electrician, Quentin Strickland, along with others was renewing electrical connections on the drive to our No. 1 machine. The job required long hours, and while it was being done, the prevailing wind blew evaporator sewer gases into the working area. These gases contained small quantities of hydrogen sulfide. Continued exposure burned sensitive membranes in and around the eyes, resulting in a serious lost-time accident. Not only did Quentin suffer but Brunswick ended an accident free period of some 14 months. Needless to say, the use of a hydrogen sulfide detector and analyzer is mandatory at Brunswick today.

Danger Is Always Present . . .

Any chemical capable of reducing wood chips to pulp is dangerous. White liquor for kraft pulping is usually 75% active sodium hydroxide and 25% sodium sulfide. The sodium sulfide hydrolizes to sodium hydroxide and sodium hydrosulfide. With a dilution of 6 parts water to 1 part active chemical, the solution is relatively mild. This should not be deceiving, though, as the solution is used under quite high temperatures. Chemical reactions are usually activated in proportion to increase in temperature.

The points brought out here apply as well to the soda and sulfite processes. If reasonable care is exercised, no real hazard is present. Pipe flanges, valves, inserts and other fittings should be leak proof and inspected at regular intervals. An audigage is helpful in determining extent of corrosion in liquid lines and tanks.

In sulfite mills, sulfur dioxide may be found in the acid plant and digester relief systems. A heavy, pungent gas, it can cause severe headaches and discomfort if breathed in large quantities for even a short time. Unlike hydrogen sulfide, sulfur dioxide continues to be irritating no matter how long exposure continues. The only danger of asphyxiation is in the case of insensibility prior to the presence of the gas. Sulfur dioxide by itself is not extremely toxic but being a strong reducing agent will readily remove life sustaining oxygen from the air.

3. ClO_2 Adds to Hazards of Bleaching . . .

. . . Besides danger of burns and respiratory irritation, fire hazards exist in both chlorine and chlorine dioxide bleaching . . .

By CHESTER MATZENGER, JR.
Safety Supervisor, International Paper Co., Mobile, Ala.

● Probably the most widely used and best known chemical in a bleach plant is chlorine and it alone creates numerous hazards. In recent years our industry has added to this hazard by the ever-increasing use of chlorine dioxide, which brings on new problems.

Our most prevalent danger in the bleaching system is probably from the fumes of chlorine. This, predominantly, comes from leaks in the lines. The gas is most irritating to the respiratory system, hence someone will generally start coughing and leave if the concentration does not become too strong too fast. Watering eyes is also a warning sign. These effects can be a blessing in that the man will leave the area before the concentration becomes too strong. One part per million has been suggested as an acceptable concentration for continuous exposure. An acid type gas mask provides protection for concentrations of about 2%. However, long periods at this concentration can cause serious irritation.

How to Find Leaks . . .

Bad leaks can be quickly found in any liquid line by the formation of a greenish yellow frost around the leak. Smaller leaks (the most common) can be quickly found by shutting off the chlorine line, clearing the air in the building and then testing it, a section at a time, by putting ammonia hydroxide on a rag and passing it over the section to be tested. When a leak is crossed by the rag a white smoke will develop.

Another precaution is to never shut off both ends of a line carrying liquid chlorine at the same time. This will,

Belknap ..... Peterson

Program Chairman and "Pinch-hitter"

ROBERT G. BELKNAP, personnel mgr. of the Bemis Bro. plant at East Pepperell, Mass., is chairman of Pulp and Paper Section for Safety Congress in Oct. 1958. CLIFFORD L. PETERSON, asst. maintenance supt., The Mead Corp., Kingsport, Tenn., read paper prepared by Mr. Pineo.

at times, cause an expansion, sufficient to rupture the line. Most modern plants have expansion chambers in the lines for just such emergencies.

When liquid chlorine enters the mixing tank and caustic soda is added, we increase our problems. Caustic soda should never be handled without face shields, chemical goggles, gloves, aprons and boots. With proper ventilation no respiratory protection is necessary. However, in most cases this is hard to secure, and a respirator is desirable. Water alone will help remove caustic soda, but 2% to 5% solutions of acetic acid should be kept readily available for use should anyone get caustic soda on skin or clothing. This solution should not be put in the eyes, however. Use only water without medical approval.

Dangers of Sodium Chlorate . . .

In our chlorine dioxide system we are faced with sodium chlorate, sulfuric acid, sulfur dioxide and air. Of these, the most dangerous is probably sodium chlorate. Most of our men respect the other chemicals, but the delayed action of sodium chlorate creates a severe hazard.

This chemical in a liquid state is not as dangerous on a man's shoes or pants as it would be an hour or so later after it dries. The slightest spark, or, under most favorable conditions, extreme heat will set off a fire. Persons handling this material should wear rubber clothing that can be thoroughly washed after each use. We have, for demonstration purposes, dripped, not soaked, a pair of pants and shoes in this solution and let them dry for two hours. A cigaret touched to them caused them to burn so fast it almost caused an explosion. They were gone without any ashes faster than we could time them with a stop watch.

A pump used to pump this liquid was shut down a couple days. The packing had a slight leak and enough sodium chlorate dried on the outside to cause the pump to practically explode after starting it. This was from the heat generated by the shaft turning the stuffing box.

Other Chemicals . . .

Most probable danger of sulfur dioxide is in inhaling fumes. However, its action is generally limited to the upper respiratory system, and *if* its concentrations are kept low enough there is no irritation of the nose or throat. Fortunately, it is more toxic to vegetable than animal life.

Most probable danger of sulfuric acid is from face and body burns. However, it is irritating to the mucus membranes and skin as a liquid, or its fumes, and proper protective equipment must be worn. If water or moisture get to this chemical in an iron drum, hydrogen gas is formed and a fire hazard develops. Proper ventilation is a must.

Before being dissolved in water, chlorine dioxide is most flammable. A piece of wood or a wad of grease in it will cause a fire. Chlorine dioxide is most corrosive (worse than chlorine) and the possibility of leaks because of this must be watched. All chlorine dioxide generators must have a large hood and suitable exhaust fan, particularly if they are inside a building. All generators that I have heard of will let some gas escape at times.

Reactions of Chemicals Vary . . .

We should all remember that chemicals will not always react the same way nine out of ten times, in that the container in which they are handled or the other chemicals with which they may be mixed, on numerous occasions will create dangers entirely foreign to the dangers created by the chemical itself.

Regardless of the type of system that is used in your plant, there should be a good distribution of gas masks that are checked at least once a month. A self-contained air mask such as the Scott Air Pack will allow a person to enter certain areas at times that the best gas mask will now allow.

At danger points emergency showers that turn themselves on when you walk in are a must. At some points an eye wash station may be desirable.

Planned periodic drills for the possible dangers in your plant should be held. First Aid treatment is generally known but often forgotten when dealing with chemicals in pulp bleaching. In gassings always remove the man from the gassy atmosphere. If you have oxygen breathing equipment, and all plants that have bleach plants should have one, then the equipment should be started at once. It is always better to move equipment to the man.

In chemical sprays, immediately put the man under a shower, but if ice cold the shower should be brief and then hustle the man to some place to continue his shower with warm water. While under the shower he should have all his clothing removed even if necessary to cut it off.

Earl F. Ripstra, New Chairman

Elected to head Pulp and Paper Section, National Safety Council, he is personnel and safety manager for the Container Corp. of America plant at 35th St., Chicago. Born in Grand Rapids, Mich., he formerly has been with CC of A 20 years, formerly at its Ogden Div. mill in Chicago.

Kimberly-Clark Sends 43 To National Safety Congress

Kimberly-Clark Corp. sent 43 men to the National Safety Congress in Chicago Oct. 21-25. Many delegates felt this was one of the most sensational demonstrations of management faith in the values of safety work in industry for a long time. About half the K-C delegates were hourly paid workers; the others were from supervisory staffs of K-C mills in U.S. and Canada.

There was an undertone of talk at the Congress about the dangers of industrial concerns cutting down on safety staff and safety work expenditures as "expendable" items in this period of belt-tightening.

St. Regis sent 15 men to Chicago, (considerably less than a year ago); The Mead Corp. had a similar num-

"Don't Bet Your Life" Powell

CLYDE R. POWELL, hypnotist, magician and psychologist for Lehigh Safety Shoe Co., Emmaus, Pa., presented a sizzling safety talk and magic show which packed a Pulp and Paper Section session. While doing tricks with ropes, rings, cards, hidden money, and the old shell game, he spiced his act with advice on safety. For instance, when he made objects disappear, he moralized: "In a split second of carelessness I can lose a finger or an eye . . . but I can't grow one back on the longest day I live . . . we go this way once . . . we don't have a second chance." He is available for management or safety committee meetings or foremen's clubs—for free.

Gilmore ..... Soughton

Past Chairmen Reminisce

ROBERT M. GILMORE, safety director for all Rayonier mills, formerly chairmanned the Wood Products section, and FRED SOUGHTON, now training coordinator, Kimberly-Clark Pulp and Paper Co., Terrace Bay, Ont., completed term as chairman of Pulp and Paper section.

ber, International Paper had a man from each of its Southern mills and a few others from the North.

The Pulp and Paper section sessions were split up for pulp and paper operations, converting plants, insulating and roofing and paper box and container groups. If you wandered over into Wood Products meetings, you found more paper company or pulpwood company safely men among the loggers and wood products plant representatives than all others put together.

14,000 at Congress

About 14,000 people attended the 45th National Safety Congress, held in Chicago Oct. 21-25. They studied ways to prevent work accidents which last year killed 14,300 workers, injured 2,000,000 and caused a loss of 235,000,000 man-days.

Rep. Kenneth A. Roberts of Alabama, Maj. Gen. B. K. Young of London, director-general, the Royal Society for the Prevention of Accidents, and Ned H. Dearborn, president of the Council, were featured speakers. Gov. William G. Stratton of Illinois spoke at a banquet. About 700 delegates presented papers or served on panels.

The Exposition was a feature, with interesting exhibits of many new kinds of safety equipment.

Watch Out for Low Voltage

Just because you are handling low voltages, don't get the idea that you can't get hurt. Howard A. Brown of Rochester Gas & Electric Corp., Rochester, N. Y., explained why at a session of the Pulp and Paper section of the National Safety Congress.

Voltage divided by resistance equals the number of amperes passing through a person's body, if he is careless enough to touch a "hot" wire or socket. The body's resistance consists almost completely of skin resistance. That is usually from 100 to 300 ohms, depending on area of the skin and whether the skin is dry or moist. Even with an exceptionally high resistance of 500 and a low voltage of 50, the result would be .1 amperes or 100 milliamperes, enough to stop respiration and cause death. Somewhere above 100 milliamperes, ventricular fibrillation (a condition in which the heart stops beating) and almost certain death occur.

What should you do for a person who has received an electric shock? First, get him out of the circuit. Next, apply artificial respiration. If ventricular fibrillation has occurred, about the only thing that can save him is a recently-discovered method of introducing another current that will set the heart back to its rhythmic beating again. But few people are lucky enough to have a doctor at their side at such a time.

A much better idea is to follow a few simple precautions to prevent the shock occurring in the first place: 1) Respect all voltages and don't take chances. 2) Take extra precautions when you are wet. 3) Use proper equipment. Good maintenance is imperative. 4) Low voltages (6 to 32) are recommended for extension cords for lights in tanks and boilers. Never use brass shell sockets for extension cords.

Hartleroad ..... Coulon

Make Plans for a Session

JACK HARTLEROAD, KVP Co., Kalamazoo, Mich., safety director, chairmanned converters' session, shown with VINCENT P. COULON, Sealright Co., Fulton, N.Y., safety director.

Pole-Catty Safety Gimmick

Three Crown Z mills of the lower Columbia River area—Camas, West Linn and St. Helens—have intensified interplant safety competition through use of a novel award. The three-mill circuit is equipped with two live skunks (deodorized) which "reside" at the mill most recently experiencing a lost-time injury. As a result of a toe-in-elevator accident the Camas plant became the first official host.

Dearborn ..... Berryman

Good for Nekoosa-Edwards

NED DEARBORN, National Safety Council president, congratulates ERNEST BERRYMAN, Nekoosa-Edwards Paper Co., on news that the Port Edwards, Wis., sulfite pulp and paper mill passed 2,000,000 man hours without a lost time accident at the time the Congress was on in Chicago.

No Accidents at All

Predicting a time when we can think in terms of no accidents at all, Rex Paxton, public relations director, Sutherland Paper Co., Kalamazoo, Mich, gave the keynote address for the Pulp and Paper section of the National Safety Congress. Some 60,000 fewer persons died in 1956 than would have if rates existing before the National Safety Council was organized had continued, he said.

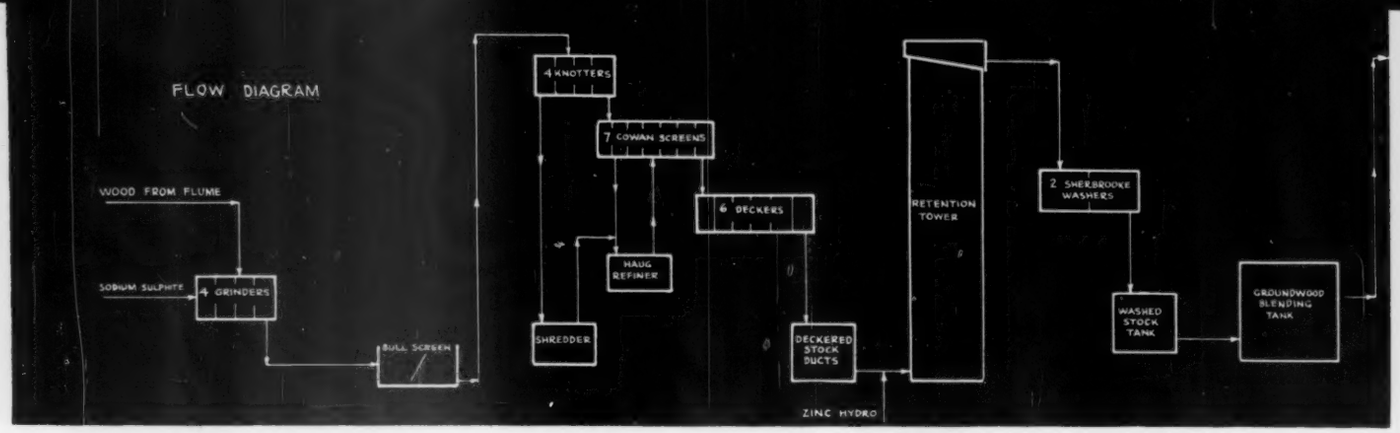
Mando, Fraser Tops In Safety for 1956

Minnesota and Ontario Paper Co., winner for 1955, repeated its performance in 1956 by winning the Arthur Hoyt Scott Safety Award donated annually by Scott Paper Co. This is for an entire company with multiple operations (not including subsidiaries with separate safety organizations) which has the best safety record in the industry according to National Safety Council records. Claire L. Lyon, corporate employe relations manager, Scott Paper Co., presented the award to D. L. Eisenach, safety director for Mando.

For the third consecutive year, the Newcastle, N.B., Canada, kraft mill of Fraser Companies, Ltd., won the Edward Benton Fritz award for 1956. This goes to the highest individual pulp-paper mill in the Council's Division 1 of the industry, which also submits additional required reports to qualify for this award. Ralph B. Murchie, supt. of the Newcastle mill, received the award.

Winners were announced at the National Safety Congress in Chicago.

See Pulpwood Section for more Safety Congress Reports

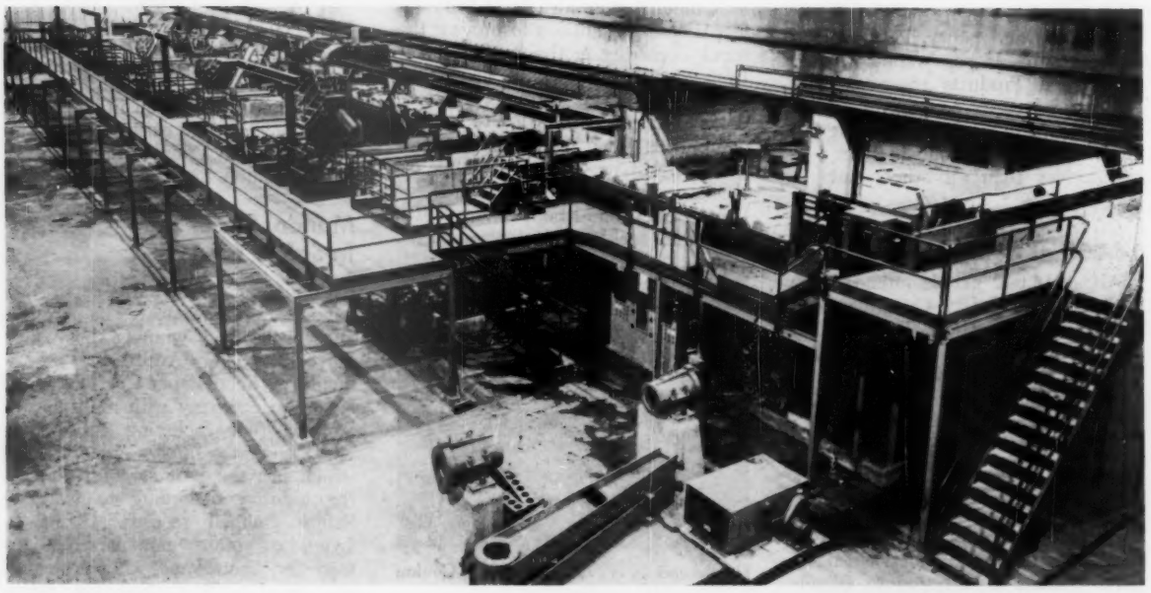


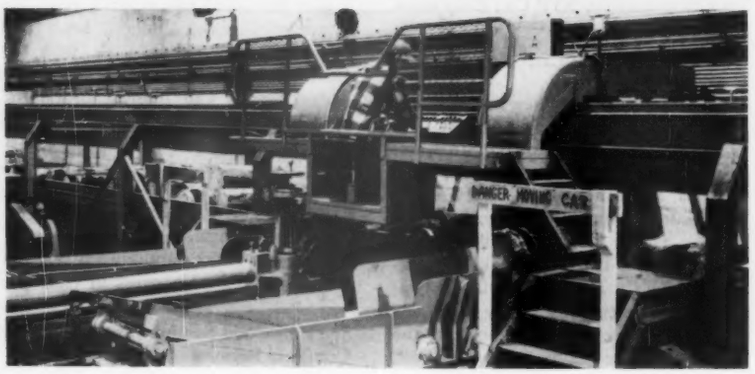
Picture Story of Powell River's New No. 9 Machine . . .

Served by . . .

A Well Equipped Groundwood Mill

As story was being written, No. 9 newsprint machine was averaging 2,000 fpm; plans are to boost speed soon. . . .



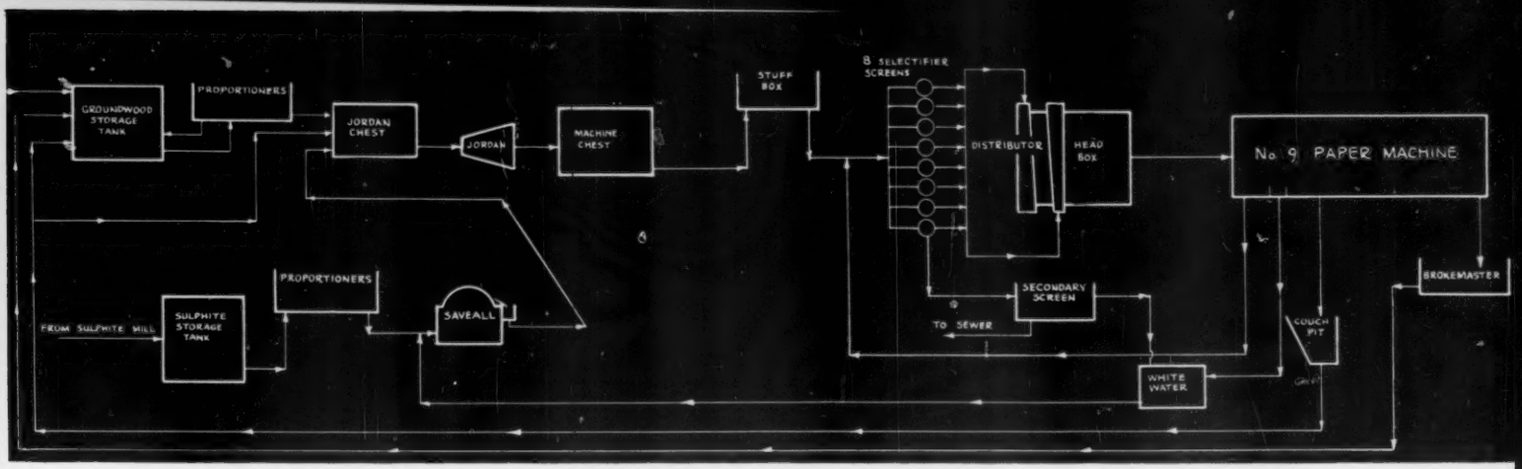


Big Groundwood Operation—Takes Big Wood . . .

. . . was designed to handle 5 ft. 4 in. blocks. Four Waterous grinders are driven by 5,000 hp Westinghouse motors. Master governor controls overall load.

"Foley Flyer" Loads Grinders...

Moving carriage, built by Letson & Burpee, is operated by pushbutton. Dubbed the "Foley Flyer," it expedites loading of Waterous Great Northern grinders. Harold and M. J. Foley, brothers, are chairman and president of Powell River Co., respectively. A 600 ft. long conveyor feed and 1,200 ft. long all-metal flume with spike-roll discharge carry 64 in. blocks here from expanded sawmill.



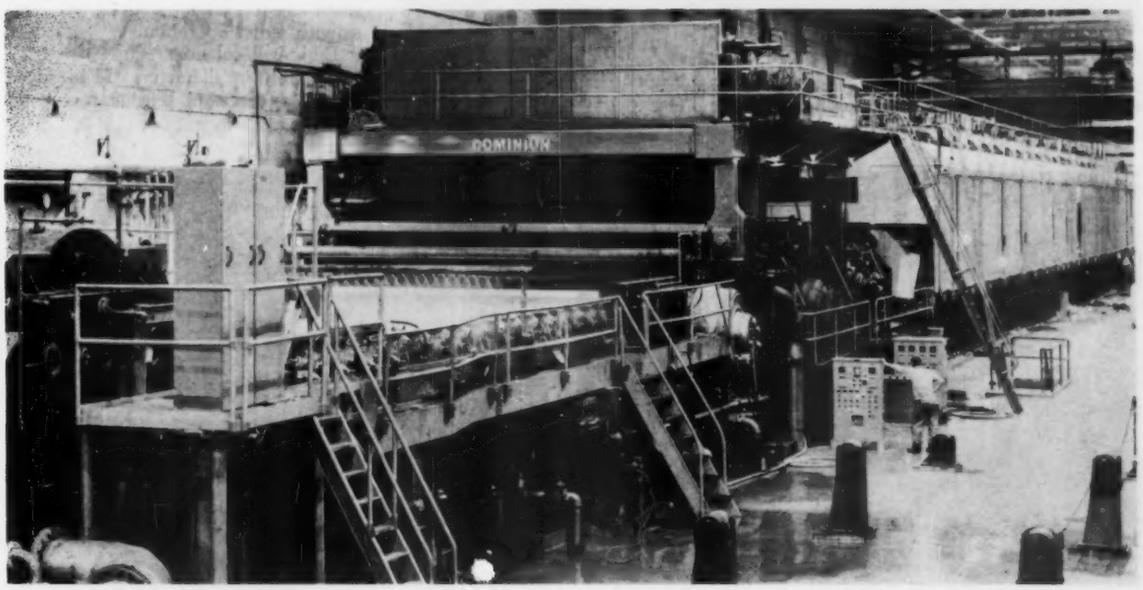
Flow Chart Above . . . From Grinders to Paper Machine

A complete new groundwood mill supplies groundwood stock for No. 9. Four Waterous Great Northern grinders handle 64 in. blocks. A sloping-plate sliver screen, four Jonsson vibrating screens, seven Cowan screens and six Cowan deckers screen the stock. Deckered stock is pumped to retention tower, treated with zinc hydro-sulfite, washed on two Sherbrooke washers and pumped to central mill blending and storage tanks. The Dorr-Oliver-Long saveall is driven by a Reliance ac-dc variable speed 15 hp drive with rheostat operated by remote manual controlled Conoflow EB pneumatic cylinder. Eight Black-Clawson selectifier screens handle primary screening before the headbox. A No. 60 Pasco (Port Arthur Shipbuilding Co.) jordan supplied by Canadian General Electric 320 hp synchronous motor before the machine tank refines the mixed stock. The broke pulper is repulped at the dry end by an E. D. Jones & Sons Brokemaster dry broke pulper.

Addition of No. 9 machine at Powell River Co., Ltd., Vancouver, B.C., involved creation of virtually an entire newsprint mill with new grinders, knotters, screens, refiners, deckers, washers, tanks, etc., and housing for them. Pictures illustrate highlights of the two-year, $20,000,000 building program recently completed.

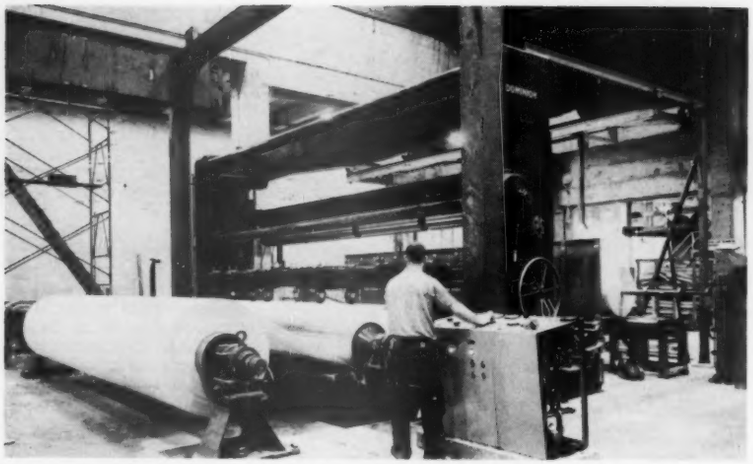
An Old Hand at Startups . . .

Vice Pres. RUSSELL COOPER pushes button, sets in motion new No. 9 machine adds 90,000 tons annual newsprint production for a total of about 500,000 tons at Powell River. Mr. Cooper was at Quebec North Shore Paper Co. in Baie Comeau when two newsprint machines there went into production and helped start up No. 8 at Powell River in Sept. 1948. No. 9 is designed for speeds up to 2,500 fpm. Wire width is 262 in., trimming 246.



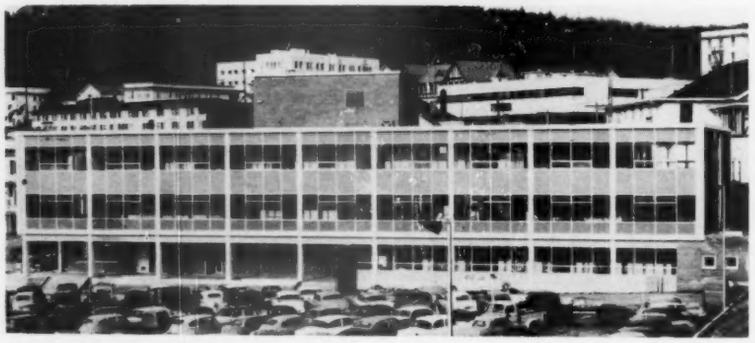
New Features on Machine . . .

Stock flows to Dominion Engineering newsprint machine through pressure-type headbox with parabolically tapering cross-flow distributor and three stainless steel distributor rolls. Flow onto wire is through slice mechanism devised by late Robin Bell-Irving, former engineer and vice pres., Powell River Co., and Sandwell & Co. Couch roll and wire drive roll are removed as a unit with rest of Fourdrinier for wire changing. Machine has Ross Engineering air system and hood and Ross Economizer.



Winder Operates at 6,000 fpm . . .

Dominion Engineering Co. winder incorporates a safety guard. Steel drums are 22 in. in diameter. Riding roll pressure is automatically regulated and slitter adjustments are made by gear mechanisms. Drive is by General Electric. From here rolls are sorted, wrapped, labeled, weighed and lowered one floor and upended while traveling via automatic contact-switch Lamb-Grays Harbor system to shipping platform.



More Production Means More Offices . . .

Modern three-story office building was recently completed, giving additional facilities to handle increased work load resulting from startup of No. 9.

Design Features of No. 9

Couch roll and wire drive roll removed as unit with rest of Fourdrinier for wire changing. Drive connections to these rolls of special instantly disconnecting type. Mechanism for removing Fourdrinier below the floor.

Oil hydraulic operation for the breast roll retracting mechanism, wire stretchers, cross cutters and folding run-out beams. Forming board and breast roll doctor retracted with the breast roll. Cross cutter cantilevered during wire changing.

Couch diameter of 54 in., open-end type, mounted on self-aligning, anti-friction bearings. Triple compartment suction box with air-loaded seal strips and deckles, special silencing arrangement. No boxes under wire.

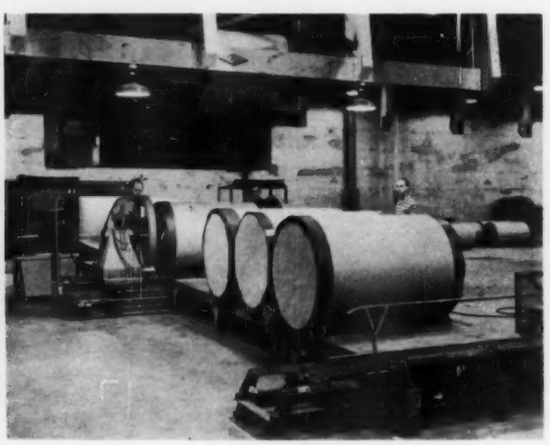
Pickup roll, a transfer press, a wringer press, two suction presses, with provision for future third press. All suction press rolls stainless steel, with anti-friction bearings; hydraulic loading, lifting steel framing for presses for high line pressures. Top members support 10-ton overhead crane built in. Dominion broke conveyor-pulper on first press.

Dryers—62 of them—in three sections, each with top and bottom felt. Paper dryers, sweat dryer and 8 felt dryers 60 in. diameter, with self-aligning, anti-friction roller bearings. Front framing of dryer part is box section design, minimizing dust collection, affording maximum accessibility. Rear framing incorporates Dominion small gear drive, redesigned for smooth, quiet operation.

Eight-roll calender stack with bottom roll 40 in. diameter, 254 in. face. Dominion constant tension reel with

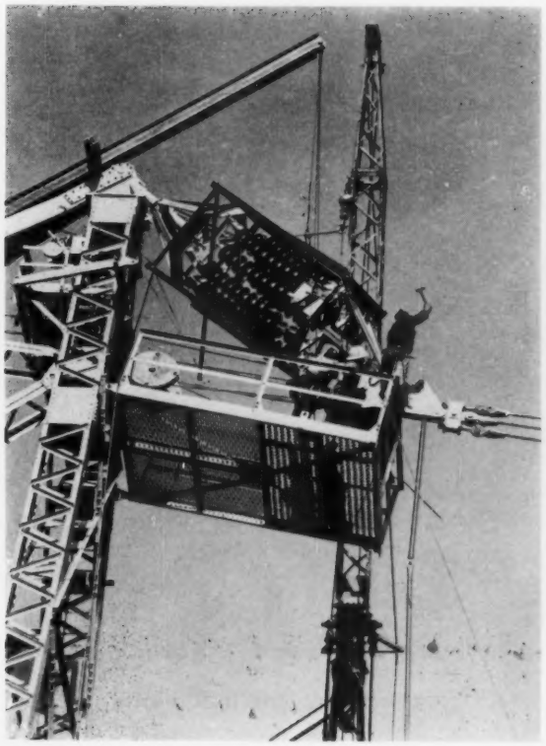
Rolls Received From Machine Room . . .

. . . portion of Lamb Grays Harbor finishing system where rolls are wrapped by means of overhead wrapper dispenser and headed into hydraulically operated automatic heading machine . . . thence to weighing, stenciling, labelling station. . . .



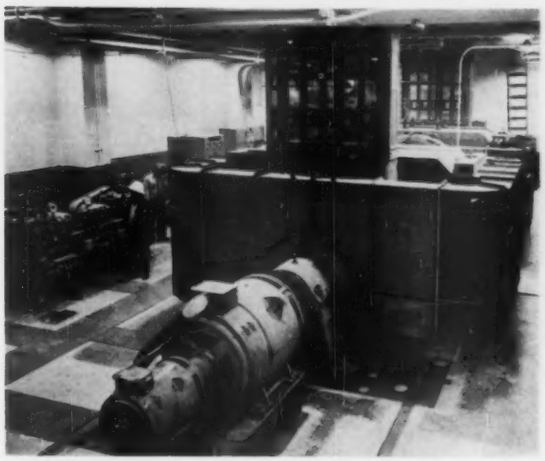
Aboard Narrow Gauge Railroad . . .

You don't see many of these in mills. Taken down Lowerator to ground floor, rolls are upended at extreme right. Clamp truck, entering at left, takes rolls off upender to r.r. system alongside wall. Engine (outside door) hauls rolls to wharf storage.



The Big Problem Was Power . . .

British Columbia Electric Co. solved it by building a 107-mile transmission line to carry hydro-electric power from Squamish on Howe Sound. The over-water crossing of Jervis Inlet is one of the world's longest. A new switchyard steps down the 132,000 volts to 6,600 volts for mill use.



New Frequency Changer . . .

A 20,000 kw English Electric frequency changer converts from 60 to 50 cycles or vice-versa. A sub-station to handle incoming power and feed the 60-cycle power to grinder and screen rooms and 50-cycle power to the mill electrical loop also was erected.

hydraulic operating mechanisms for jumbo reels. Winder operates at 6000 fpm. Drums of steel, 22 in. diameter.

Features of Machine Drive . . .

Canadian General Electric multiple generator sectional electric drive has 15 motor input shafts. Following groups of 1150 rpm dc drive motors are separately speed-controlled sections:

(1) Couch and forward drive roll motors (400 hp each).
(2) Transfer press, (250 hp), wringer press (150 hp), pickup roll (100 hp), and 1st press motors (250 hp).
(3) 2nd press motor (250 hp).
(4) The 6 dryer drive motors (200 hp each).
(5) Calender motor (400 hp).
(6) Reel motor (100 hp).

The 600 hp fan pump motor is 7th section, also has an individual speed control. Other controls: A load-sharing device between the couch and forward drive roll, and secondary speed control on Section 2 above to insure pickup roll is rotating at the correct speed when brought into contact with the wire between couch and forward drive roll.

Dryer section is operated by six motors, but geared as complete unit. Drive sections of enclosed gears and pinions connected by idler gears; dryer drive motors run at the same speed. Provision to operate sweat dryer individually if desired. All drive generators coupled in one unit, driven by 2,500 hp 1,000 rpm synchronous motor.

Powell River's Machines

With No. 9 in full operation (90,000 tons), newsprint production at Powell River Co. will approximate 500,000 tons annually. Machines in operation:

No.	*Make*	*Installed*	*Inches Width*
1 and 2	Pusey-Jones	1912	156 (1) 162 (2)
3 and 4	Walmsley	1913	193
5 and 6	Walmsley	1926	234
7	Dominion	1930	226
8	Dominion	1948	226
9	Dominion	1957	262

Correction in P & P's List of Mergers

In a list of over 150 mergers and acquisitions in the pulp and paper industry on page 41 of Nov. PULP & PAPER, the Modena Paper Co. was listed as having acquired the Hopper Paper Co., Taylorville, Ill. Actually, the Hopper Paper Co. purchased the physical assets of the Modena Paper Co. on Jan. 2, 1957.

Also incorrect was the listing of Ferguson-Lander Box Co. as acquired by Packaging Corp. of America. Ferguson-Lander is completely independent and intends to remain that way.

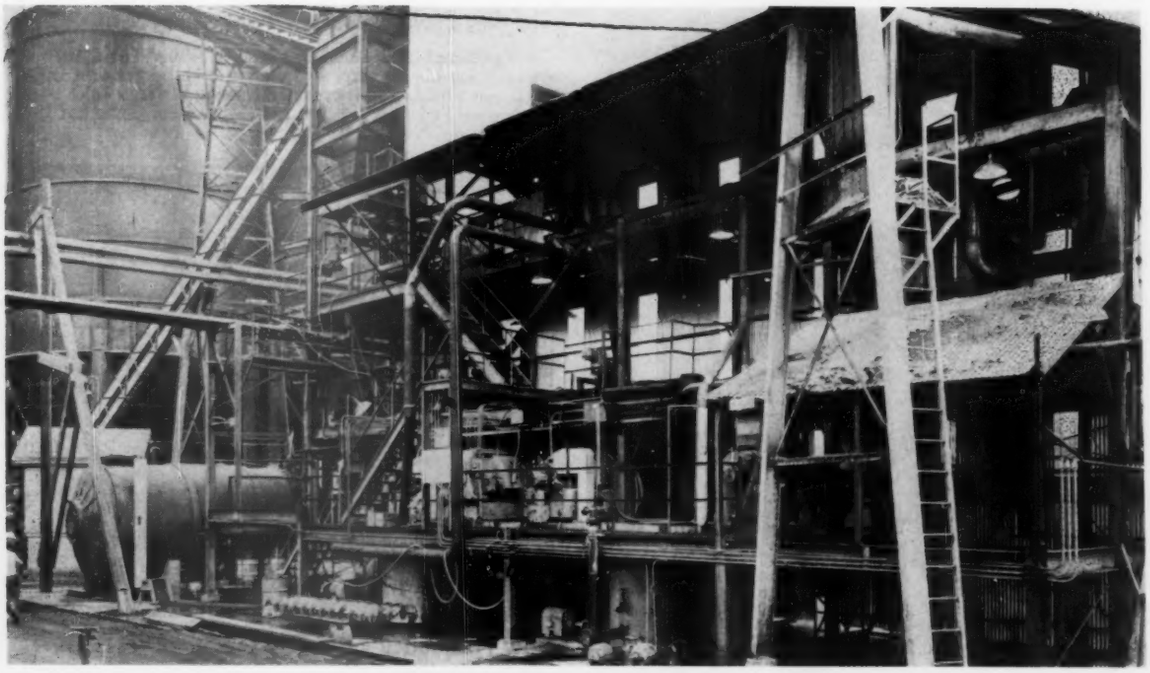
Third in trio of boners was acquisition by Marathon Corp. of Michigan Carton Co., a merger that was discussed but never carried out.

FBI Investigates Newsprint . . . a Publisher's Secret?

The Federal Bureau of Investigation is conducting an investigation of an alleged "newsprint monopoly."

PULP & PAPER has learned that FBI men are making the rounds, asking publishers and buyers of newsprint about their contracts, and investigating organizations suspected of having anything to do with the trade.

The inspiration for this activity are publishers and congressmen who want newspaper support. But, as this is written, not a line about this FBI activity, uncovered by PULP & PAPER, has appeared in the press, always so alert to publish criticism of the newsprint industry. A counter investigation of newspapers and their complaints of high costs has been proposed by newsprint leaders, but the FBI men are careful to say they are not investigating publishers.



NSSC section of Longview Fibre Co. plant expanding to 140 tons of hardwood pulp daily.

Pacific Coast Mill Upgrades Cartons by Substituting

NSSC Hardwood Pulp

for Mechanical Groundwood . . .

. . . strength characteristics of finished cartons are improved as a result. Longview Fibre Co. uses a production-size pilot plant, which has been operating two years, to do this.

G. L. Hollimon, assistant pulp mill supt. at the Longview, Wash. plant, reported on this installation at the Tacoma fall meeting of Pacific Coast TAPPI.

In experiments, various types of cooking had been tried—caustic, kraft and neutral sulfite liquors, using fir, alder, and mixtures of the two, and different combinations of refining equipment.

Best results were obtained from NS cooks of approximately 12 min. at 135 psi, using alder chips which are roto-pulped processed after screening. Total chemical volume is controlled at 315 gal. per air-dry ton of wood, of which approximately 32% is spent liquor returned to the process. The other 68% contains three parts of sulfite to one part carbonate (weight basis), these together equalling 15% of the wood weight (bone dry basis).

"Since standardizing on NSSC," Mr. Hollimon says, "our chemical handling, make up and control has been steadily revised until at present we have a fairly efficient system."

After trying several chemical handling combinations—including dry sulfite-soda ash in batches, liquid sulfite with green kraft liquor buffer, liquid sulfite with dry soda ash buffering agent—liquid sulfite with a continuous carbonate making system was adopted. This sodium carbonate system, cooperatively developed by Longfibre and Pennsalt staff, results in annual savings estimated at $9,000.

How It Works . . .

Low grade 50% caustic solution is purchased and delivered to tank storage at the plant site. The caustic is diluted to desired strength by an automatic control system and then pumped through an absorption tower into which stack gas is automatically introduced in controlled amounts to provide 98 to 100% conversion to sodium carbonate. The stock gas, containing 13 to 15% carbon dioxide, is damper-controlled according to pH of the solution leaving bottom of the absorption tower. The system requires no attention other than checking recorders periodically and weekly cleaning of pH electrodes.

This NSSC "pilot plant" component has been functioning as a regular production unit for several months as a "one-man show." Facilities have been ordered for installation this fall to increase capacity to 140 tons per day, roughly twice its previous producing rate. It's expected to continue as a one-man operation subsequent to the capacity increase.

As to the stock, Mr. Hollimon says it has pH of 9.0 as it comes from the cooker; refining requires 30.8 hp days per ton of pulp and has 660 average Canadian standard freeness rating. Furnish going to the machine is 60% NSSC and 40% kraft broke. The sheet averages above 75 Concora and con-

verts into cartons with a desirable high flat crush value.

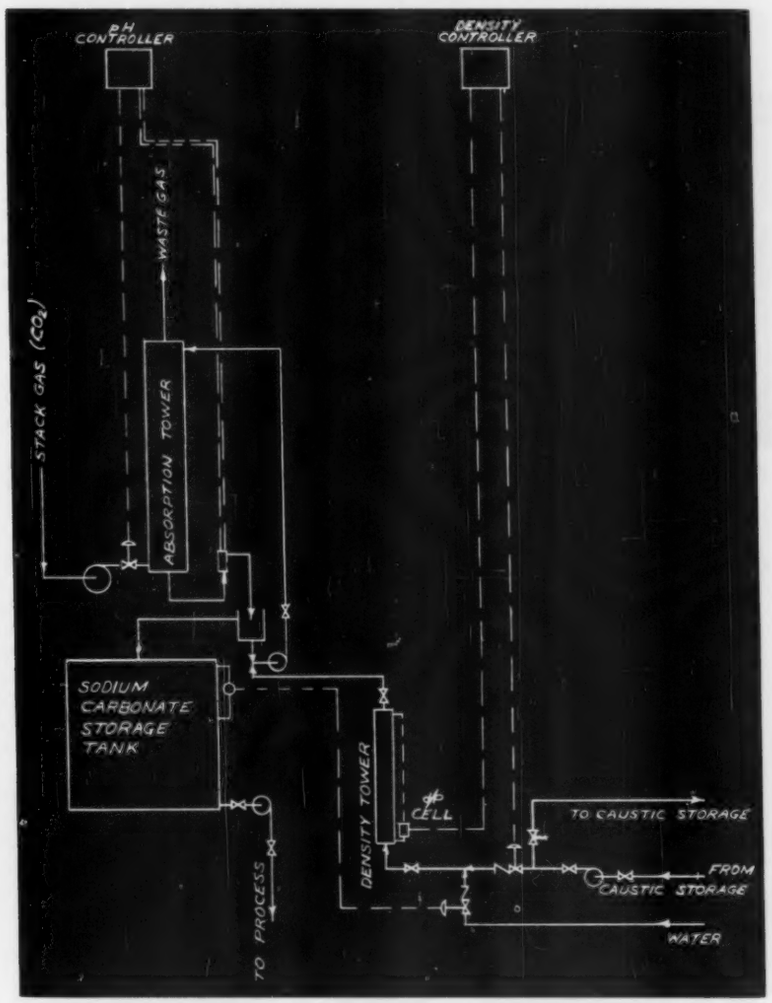
Process Equipment Used . . .

Among present processing components are a three-section Grenco stainless steel cooker 60 ft. long, Grenco inlet and outlet valves of tapered plug design, Jackson & Church chip breaker, French Pressafiner, two Bauer double-disc and one Sprout Waldron refiners.

A Bauer press of new design is to be installed shortly for use as second-stage pressing unit to process pulp after re-dilution with water. This arrangement is expected to facilitate removing over 90% of the pulp chemicals. In addition to materially reducing corrosive nature of the stock the second press has economic justification because it will increase the amount of chemicals to be salvaged. All spent liquor not returned to the process is pumped to the plant's kraft recovery system.

Recovering calcium from green liquor dregs by pumping them into the lime mud system for burning with the lime mud at Weyerhaeuser's Springfield, Ore. kraft mill was reported by John R. Parkinson, project chemist. Overflow from mud washer is cloudy with lime mud as a result of operating the liquor room beyond design capacity. "This overflow," he said, "makes up a portion of the weak wash which is used in the dissolving tanks. Thus a portion of the lime mud finds its way into the green liquor system and settles out with the dregs in the green liquor clarifiers."

Addition of the lime-laden dregs to mud storage results in (1) increased soda and free lime going to the kilns, (2) lime rock and new lime required for make-up "decreased to a very low level," (3) and the problem of balls and rings in the kilns became almost non-existent. The only noted disadvantage was the reduced causticity of reburned lime, indicating a build-up of dead load in the kilns. A systematic purging of inerts was suggested as a means for a better balance between required make-up and dead load in the kilns.



Automatic Process . . .

. . . for converting liquid caustic (NaOH) to sodium carbonate solution (Na_2CO_3) to supply NSSC continuous cooker at Longview Fibre Co. Drawing by Harry S. Fisher, of Pennsalt, who assisted in developing installation.

Pine Sulfite Cheaper . . .

. . . says Prof. OLAF SAMUELSON, Chalmers Institute of Technology, Goteborg, Sweden.

Scandinavian Activities . . .

Prof. Olaf Samuelson, Chalmers Institute of Technology, Goteborg, Sweden, said manufacture of pine sulfite pulp in his country is economical chiefly because the wood costs about 10% less than spruce. The burning of sulfite waste liquor in the Scandinavian industry as a BTU recovery process does not involve chemical recovery. He said Sweden's largest mill will convert from calcium to sodium base next year.

Two-day seminars were conducted in Portland, Ore., and Seattle by Dr. Samuelson.

He discussed various methods for measuring degradation, including chain length and carboxyl and carbonyl content. His findings indicate prehydrolyzed kraft pulp to be more uniform than sulfite in chain length distribution. In covering osmotic and ultra centrifuge methods for determining the state of viscose solutions, Dr. Samuelson concluded that cellulose xanthate exists in both dilute and concentrate solution in molecular rather than micellar form.

The second day he discussed side reactions and different bases in sulfite pulping. It was noted that thiosulfate catalyzes bisulfite decomposition to form sulfate and more thiosulfate. However the latter reacts with lignin, thus removing the catalyst.

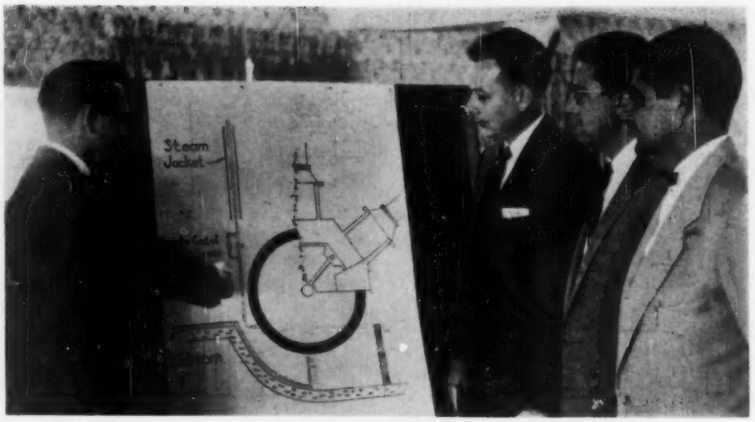
Some 80% of the sulfur in the lignosulfonic acid is present as sulfonic acid and carboxylic acid groups are

also present he said. Excess organic sulfur (that present in lignosulfonic acid but not as sulfonic acid groups) increases rapidly near the end of cooks. Recycling liquor results in scaling, high sulfur consumption and burned cooks due to the added thiosulfate.

For Better Groundwood . . .

. . . Improved techniques reported by P. T. Davis, pulp development chemist, Crown Z West Linn Div., indicate increases in mullen, freeness and course fiber fraction of the resultant pulp as the grinding temperature is elevated above 135° F. He points out, however, that these values decrease at pit temperatures over 180°. Considerable change takes place in the grinding characteristics of wood in the higher temperature according to data from the West Linn experiments. This change appears to be due to the fact that the grinding zone temperature may be approaching or passing the point at which lignin binding material is readily softened, according to Mr. Davis.

Grinding at elevated temperature indicates lower power consumption in that the pit consistencies can be maintained at reduced grinder pressures.



Grinder Arrangement . . .

. . . pointed out by PAUL DAVIS, CZ West Linn, to other panel members at Tacoma. (l. to r.) JOHN PARKINSON and Moderator FRED KEENE, both of Weyerhaeuser, Springfield, G. L. HOLLIMON, Longview Fibre Co.

$12,000,000 Chlorine-Caustic Soda Plant at North Vancouver, B.C.

New Plant, Research Center for Hooker . . .

Startup of a chlorine-caustic soda plant in North Vancouver, B.C., first reported in PULP & PAPER last month, and almost simultaneous groundbreaking for a Hooker Research Center on Grand Island, N.Y., are recent major events in the expansion of Hooker Electrochemical Co.

Rapid growth of the pulp and paper industry in British Columbia is responsible for the first chlor-alkali plant west of the Canadian Rockies, a $12,000,000 plant operated by the subsidiary Hooker Chemicals Ltd. It has daily capacities for 100 tons of chlorine, 110 tons of caustic soda and 1,000,000 cu. ft. of hydrogen, some of which will be used in-plant for fuel.

The $3,500,000 Research Center, located on a 61 acre site, will face Niagara River, just six miles from Hooker's big Niagara Falls, N.Y., plant. Pres. Bjarne Klaussen said it will employ 200 and considerable expansion of facilities is planned for the future. The initial building areas will utilize 69,000 ft. floor space, with a main two-story area. A dozen modern research centers were visited in making plans.

The Canadian plant is supplied alternating current by B. C. Electric Co., converted for cell use to direct current by Westinghouse arc rectifiers. At capacity, the plant consumes 160 tons of bulk salt and uses 7,200,000 gallons of water daily, most of which is returned to Burrard Inlet after use for cooling purposes. Installed power capacity is 18,000 kw, enough to light a city of 100,000 people. The plant comprises a dozen major buildings of concrete structure.

The 110-acre site was built up from tidelands by filling with gravel and rock totaling a million cubic yards. Transport facilities include a 500-ft. dock for coastal ships, 350-ft. barge slip and a half-mile rail spur.

Robert E. Noble, who was with Hooker in Tacoma, Wash., is works manager. Jack Sutherland is sales manager; George Richards, treasurer; L. H. Schnurstein, production supt.; L. P. Hallahan, plant engineer, and Walter Collins, personnel manager.

(L to r) ROBERT E. NOBLE, works manager; R. A. D. DOUGLAS, director, Hooker Chemicals; F. LEONARD BRYANT, vice pres.-production, Hooker Electrochemicals Co., Niagara Falls, N.Y.; JACK SUTHERLAND, sales manager.

Flaherty ..... Messner

New and Old Leaders . . . . .

THOMAS J. FLAHERTY, supt. at Lydall & Foulds Co. one-machine board mill, Manchester, Conn., is new chairman of Connecticut Valley Supts. He formerly was with Brownsville Board Co. and American Writing Paper Co.
And do you remember the man on right? It's none other than OLLIE MESSNER, who was national president of the Supts. Assn. 1948-49, now mill mgr. of Gill Division, American Writing Paper Co., Holyoke, Mass., where he went from Middletown, O., in 1951.

Wood ..... Perkins ..... Trucsdell

At Lenox Joint Meeting . . .

BEMIS WOOD, asst. to vice pres. of production (Larry Shattuck), Strathmore Paper Co., is newly elected first vice chairman, Connecticut Valley Supts. Division. BEN PERKINS JR., whose father heads B. F. Perkins & Son, Inc., Holyoke, Mass., is sales rep. for Wyatt, Inc., New Haven, Conn., supplying fuel oil and coals to Southern New England industries. SAM TRUCSDELL is purchasing agent, Stevens Paper Mills, Windsor, Conn.

Savealls . . Four Types are Compared . .

● New England TAPPI put on a fact-searching symposium comparing savealls on the market at their joint meeting in Lenox, Mass., in October with Connecticut Valley Supts. Cost comparisons, operating results, etc., were compared for the Bird Machine, Dorr-Oliver, Krofta and Sveen Pedersen savealls.

Up on a blackboard went facts and figures, with no favoritism shown. John F. Cloran, Bird Machine; R. E. Bodette, Dorr-Oliver; Dr. Milos Krofta, Krofta Engineering, and Herman Berg, Sveen Pedersen, took on all comers in defending their respective products. Initial costs of savealls, it was revealed, range from $19,000 to nearly $35,000 (the higher figures for stainless steel). Operation costs ranged from $12 to $19 a month. Areas each require, maximum concentrations, solids in effluent, etc., were compared.

Some comparisons would be be pertinent, as different types of savealls serve different purposes in mills, depending on whether filler is handled, etc. Savealls are becoming more important in this country, due to pollution problems and need for savings.

Slime problems in savealls came up for discussion and use of slimicides was advocated. Other suggestions were slight bleeding of the system, backing off on jordans, lowering the amount of fines and using slight amounts of chlorine.

E. Whitman Strecker, chief chemist of Esleeck Mfg. Co., Turner Falls, Mass., and TAPPI section chairman, and Prof. John Lewis, Lowell Tech, vice chairman, kept the discussion on the beam.

Random Notes from Lenox

A high point PULP & PAPER editor's attendance at the joint meeting in Lenox was again seeing an old friend, OLLIE MESSNER, who was national president of Supts. back in 1948. Ollie said this was one of the first meetings he had been able to attend in years. He went with American Writing Paper Co. in 1951 just two weeks before ED REID became president of that company. Ollie is mgr. of AWP's Gill mill. . . . At this joint affair, TAPPI puts on the full program one day; Supts., the next day, and many delegates attend only one of the two sessions. . . . PETE DAVERIN, vic pres. and treas., Rising Paper Co., who lives just a stone's throw from the Curtis hotel, where the meeting was held, hosted a Sunday morning breakfast for some old friends who were on hand, with help of his wife, Lorelda, and a neighbor. Then the Daverins left for a rambling vacation to eastern points. . . .

DR. MILOS KROFTA had one edge on the saveall experts. His home and engineering office are on a large estate just a little more than a stone's throw from the hotel in Lenox. He has spent two-thirds of his time in U.S.A. since 1951, but sold twice as many savealls—up to now—in Europe where they are more savings-minded in mills. His new saveall is an inverted cone flotation type.

AL BACHMAN, national president of the Supts. was down from Missisquoi in upper Vermont, to spread word of the national convention in Boston beginning next June 2. He reported he was "trying to put five Supts. v.p.'s to work." . . . From Kalamazoo came JACK DICKSON, Stowe-Woodward, Inc., in his capacity as affiliates national chairman—his first New England visit since 1939. . . . CHARLES H. MANNING, purchasing agent, Crane Co., won top golf prize, a leather bag, with a low gross of 97 . . . being only a few miles from their plant, DWIGHT JONES, CHARLEY VICKERY, THURSTON YOCUM and others of E. D. Jones & Sons hosted one of the meeting's larger cocktail parties. . . . JIM SMITH, felt div. sales mgr., and his wife, LORETTA, from Albany Felt, likewise were close-to-home hosts. . . .

ENGELBERT KRITCHELS and WILLIAM HOSMER were there from nearby Hurlbut Paper Co.

When BEMIS WOOD, asst. to Vice Pres. LARRY SHATTUCK of Strathmore, becomes Connecticut Valley chairman next year he also will be third vice pres. of national Supts. . . . CHARLES HOSTERMAN, pulp and paper supt., Champion International, was elected new second vice chairman of the Conn. Valley division. . . . ROBERT RAMSDELL, Hercules Powder; PETER FITZPATRICK, American Cyanamid; JOE KELNER, H. Waterbury & Sons, and RICHARD A. MCKAY, Holyoke Wire, were busy making the meeting a success.

An Important Message

HERCULES ANNOUNCES PRICING POLICY CHANGE FOR ALL ITS GRADES OF PALE ROSIN SIZE

Hercules Powder Company's Paper Makers Chemical Department has announced a change in the method previously used for pricing all of its pale grades of rosin size. Effective January 1, 1958, size prices will be quoted on a "flat price" basis, rather than fluctuate with the gum rosin market. Prices will be announced quarterly and will remain firm for ninety days.

For approximately fifty years, originally as Paper Makers Chemical Corporation and since 1931 as Paper Makers Chemical Department of Hercules Powder Company, this pioneer in the prepared rosin size business has used the gum rosin market as a basis for computing sales prices for pale grades of rosin size.

Prior to 1951 the accepted gum rosin market was the daily "Savannah Market" based upon transactions handled through the Savannah Naval Stores Exchange. The volume of gum rosin offered through this exchange declined sharply during 1950 and 1951, and as a result it ceased to function late in 1951. Thereafter, the only published source of current market information on gum rosin has originated in the Savannah office of the U. S. Department of Agriculture. Since these reports were considered to reflect accurately the sales quantities and prices of gum rosin, Hercules adopted the weekly U. S. Department of Agriculture market as a basis for computing rosin size sales prices. This method has remained in effect until the present.

In earlier years the rosin content of Hercules' pale sizes was predominantly gum rosin and the use of the gum rosin market in establishing size prices was logical. Later, as Hercules' wood rosin (Pexite) became more readily available, the company took advantage of its outstanding quality features by using it in steadily increasing quantities as a replacement for gum rosin in pale sizes. In 1956 Hercules developed a greatly improved grade of distilled tall oil rosin (Pamite) and because of the immediate and general mill acceptance of sizes based upon this rosin, the shift away from gum rosin gained momentum. During the past year the trend toward manufactured rosins such as Pexite and Pamite has continued and today the quantity of gum rosin used in Hercules' pale sizes is a relatively small percentage of the total.

In consideration of these developments Hercules has adopted a "flat price" policy, believing that the use of the gum rosin market is no longer justified. The new program will become effective January 1, 1958. Approximately two weeks prior to that date, the company will announce prices for all grades of pale size and these prices will remain in effect through the first quarter of 1958. This same procedure will be repeated for each calendar quarter thereafter.

Consumers have long expressed strong preference for stable prices which do not reflect the usual weekly fluctuations of the gum rosin market and will, we believe, welcome this change in pricing policy.

PP57-7

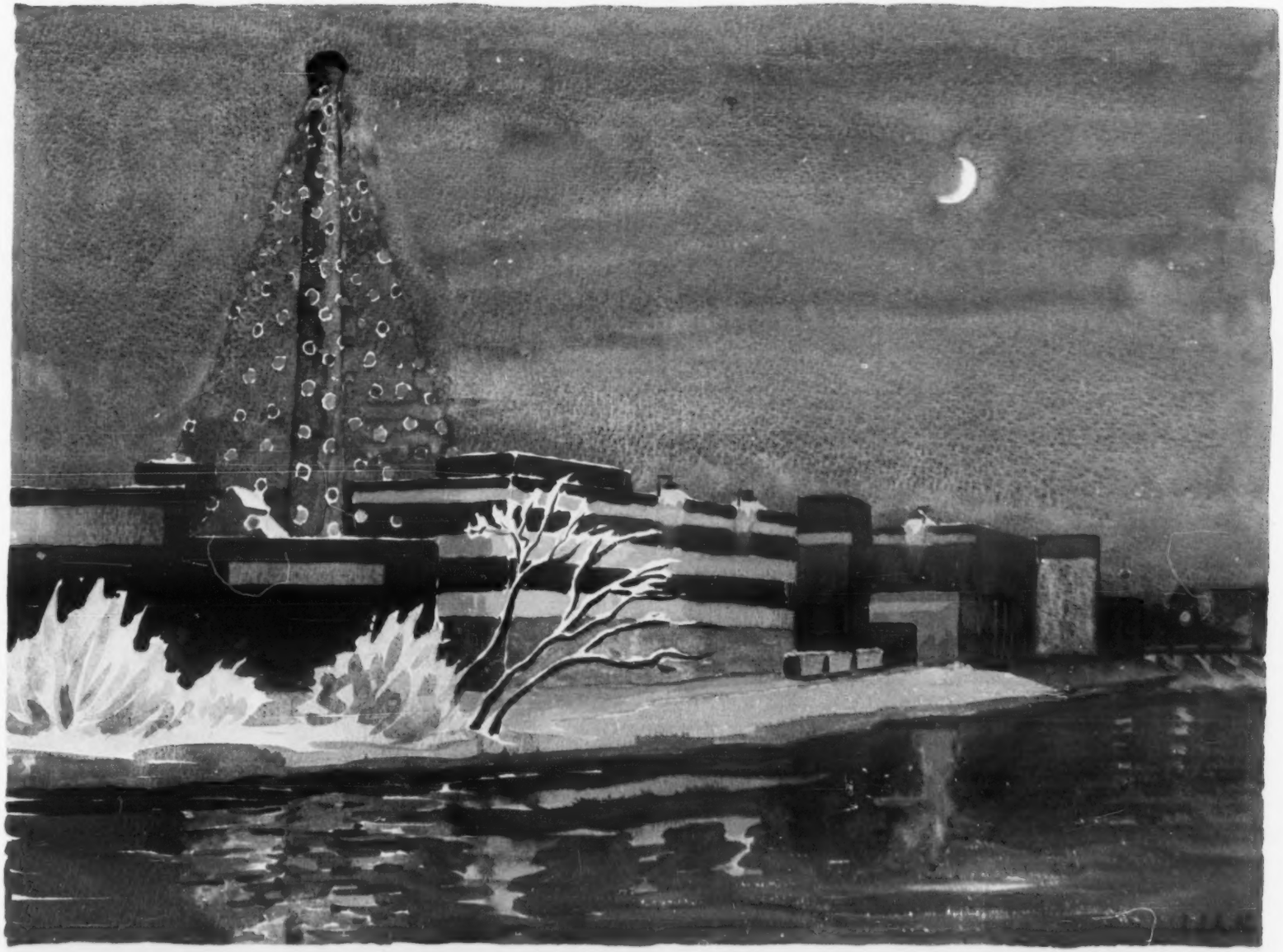
Paper Makers Chemical Department

HERCULES POWDER COMPANY

INCORPORATED

900 Market Street, Wilmington 99, Delaware

HERCULES



WATER COLOR PAINTING BY L. J. A. NEESE

COLORED LIGHTS on the main powerhouse stack at Beloit Iron Works twinkle like a giant Christmas tree, conveying friendly season's greetings to the community from the plant located on the banks of the Rock River at Beloit, Wisconsin.

Sandoz colors . . . for bright, attractive papers

Brightest of the Basic browns, Sandoz Bismarck Brown G opens up a new, brighter range of Basic tans and browns . . . permits the use of a less expensive furnish where standard shades are desired . . . offers considerable savings over regular types of Basic browns in producing shades of brown and black.

Extra values like these are built into every Sandoz quality dyestuff and chemical for papermakers.

Call on our paper laboratory for expert application counsel on your next paper coloring problem. SANDOZ, INC., 61-63 Van Dam Street, New York 13, N. Y. ALgonquin 5-1700.

SANDOZ
THINKS AHEAD WITH PAPER

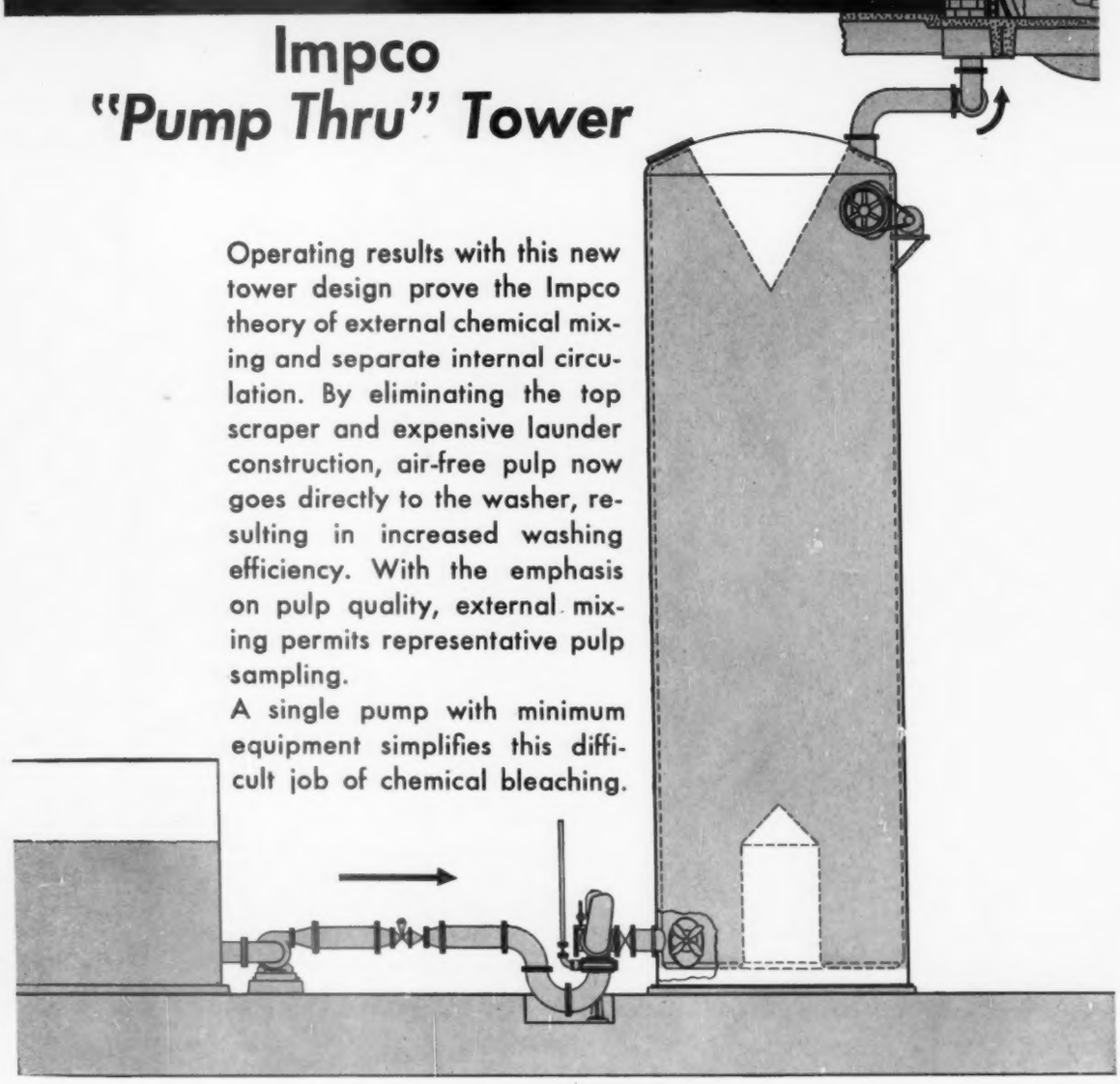
SANDOZ

the Modern Low Density Bleaching Technique

Impco
"Pump Thru" Tower

Operating results with this new tower design prove the Impco theory of external chemical mixing and separate internal circulation. By eliminating the top scraper and expensive launder construction, air-free pulp now goes directly to the washer, resulting in increased washing efficiency. With the emphasis on pulp quality, external mixing permits representative pulp sampling.

A single pump with minimum equipment simplifies this difficult job of chemical bleaching.



IMPROVED MACHINERY INC.
NASHUA · NEW HAMPSHIRE

In Canada, Sherbrooke Machineries Limited, Sherbrooke, Quebec

At Rhoads, the Job Selects the Belt

In the Rhoads' family of beltings, there is a flat belt that is exactly right for your operating conditions.

It may be Tanastic, new leather/plastic belting with a stretch-free nylon core.

It may be Texalon, new all-synthetic belting of fabric and nylon . . elastic and almost 100% stretch-free.

It may be Tannate leather belting, the product of more than 250 years of tanning experience.

Rhoads' Engineers Consider All of the Factors Involved

The advantages of the flat belt drive — economy in original cost and in operation; highly efficient speed reduction; shock absorption; high degree of safety; flexibility in placement of motor — all these advantages and many others are used by Rhoads' engineers.

Based on the job the belting is to do, and the operating conditions involved, Rhoads recommends the belting that is engineered to your needs.

Tanastic

leather/plastic belt . . . no unscheduled shutdowns

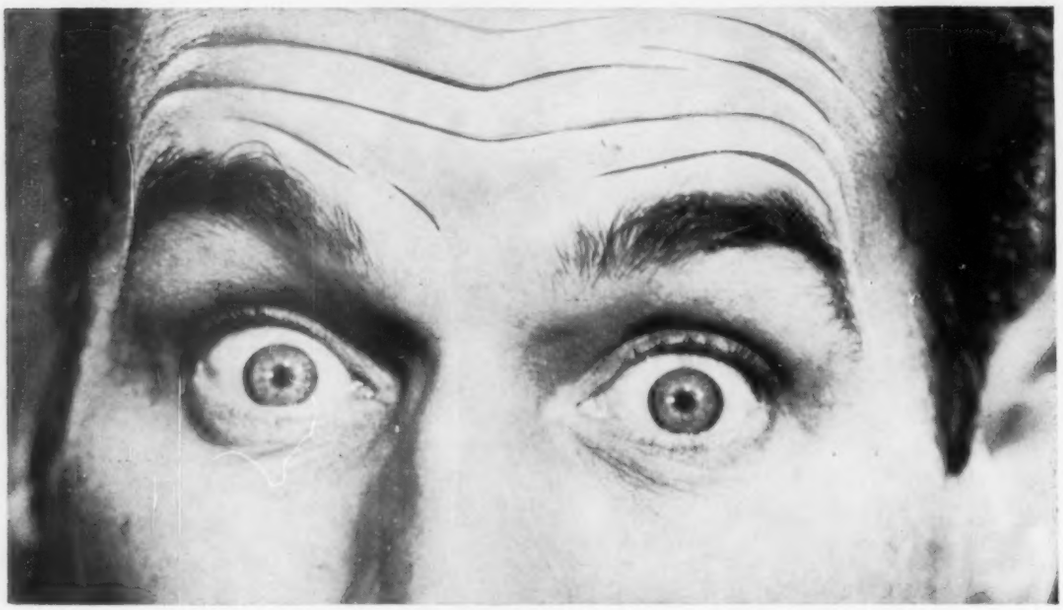
In Rhoads' Tanastic you get the ideal combination of strength and elasticity — the ability to absorb shock loads and transmit full power uniformly, smoothly and efficiently — with no unscheduled shutdowns for tension adjustments. On cone drives the narrower Tanastic belt (usually one-third the width of previous belts) permits faster driven speeds and a wider variety of speed changes.

Tanastic can be used effectively on a wide range of belt applications . . replacing present leather, rubber or V-belts and easily designed for new installations. Let us quote Tanastic for a specific drive or write for new bulletin. Address Engineering Department, J. E. Rhoads & Sons, Wilmington 99, Delaware.

RHOADS

Since 1702 . . . Pioneers in Mechanical Power Transmission

Dryer Felt EMERGENCY?



call Brandon Sales for immediate service

When a dryer felt emergency comes up, quick service is essential. Good service is our ambition, and we thrive on doing the impossible in an emergency.

Brandon Sales has all types of dryer felts, and our representatives are trained to service every dryer felt need.

Wherever you are in the United States, call us for quick emergency service, or for your regular dryer felt needs.

Brandon Makes All Three—Asbestos, Semi-Asbestos, Cotton.

For immediate attention to your dryer felt problems, write:

Brandon Sales, Inc.
Drawer L, Branwood Station
Greenville, South Carolina

Representatives:
Northern and New England States
Orton Corporation, Fitchburg, Mass.
Midwestern States
Frank Clawson, Kalamazoo, Mich.
West Coast
M. J. Maguire, Portland, Oregon
Southern States
R. S. (Bob) Davis, Greenville, S.C.

BRANDON DRYER FELTS

LOWEST JORDAN PLUG MAINTENANCE COSTS ARE GUARANTEED WITH EMERSON SPECIAL FORMULA STAINLESS STEEL PLUGS. Emerson Plugs last years longer than ordinary plugs and more than pay for themselves by combating acid action and all other types of corrosion encountered in stock refining. Their special formula stainless steel gives greater built-in strength to withstand wear. Freedom from plug erosion and corrosion also means that the danger of stock contamination is eliminated.

Emerson, pioneer of bandless type plug construction, provides further maintenance economy by the special plug design. Dovetailed slots and wood separators support knives along their entire length. Separators absorb impact — prohibit destructive shock to plug body and shaft.

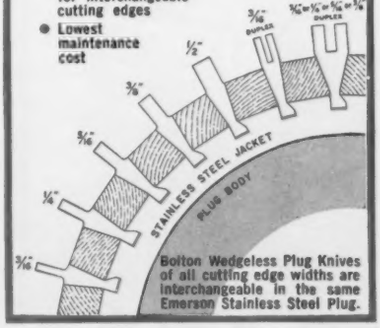
PROTECTS ANY JORDAN PLUG. You can also protect your present plugs against corrosion and wear with Emerson Stainless Steel. Regardless of plug condition, make, size or type, a heavy duty stainless steel jacket can be applied to your present plug by the patented Emerson process.

After machining and pre-conditioning steps are completed on your used plug, it is jacketed, machined to close tolerance, and slotted for interchangeable Bolton Wedgeless Plug Knives. New shaft sleeves and stainless steel rings are mounted on both ends with an end plate on the large end for over-all corrosion protection and strength. The plug then undergoes testing for air tightness and is dynamically balanced for the operating speed of your Jordan. The shaft is indicated for straightness. *For further information send for Bulletin No. P-7555. John W. Bolton & Sons Inc. and The Emerson Manufacturing Co. Division, Lawrence, Massachusetts.*

THE PAPERMAKER SAYS:
The ones that are never returned for repairs are the Emerson Stainless Steel Plugs.

They provide:

- Freedom from corrosion, erosion and stock contamination
- Greater built-in strength than ordinary plugs
- Continuous production
- Uniform slotting for interchangeable cutting edges
- Lowest maintenance cost



Bolton Wedgeless Plug Knives of all cutting edge widths are interchangeable in the same Emerson Stainless Steel Plug.

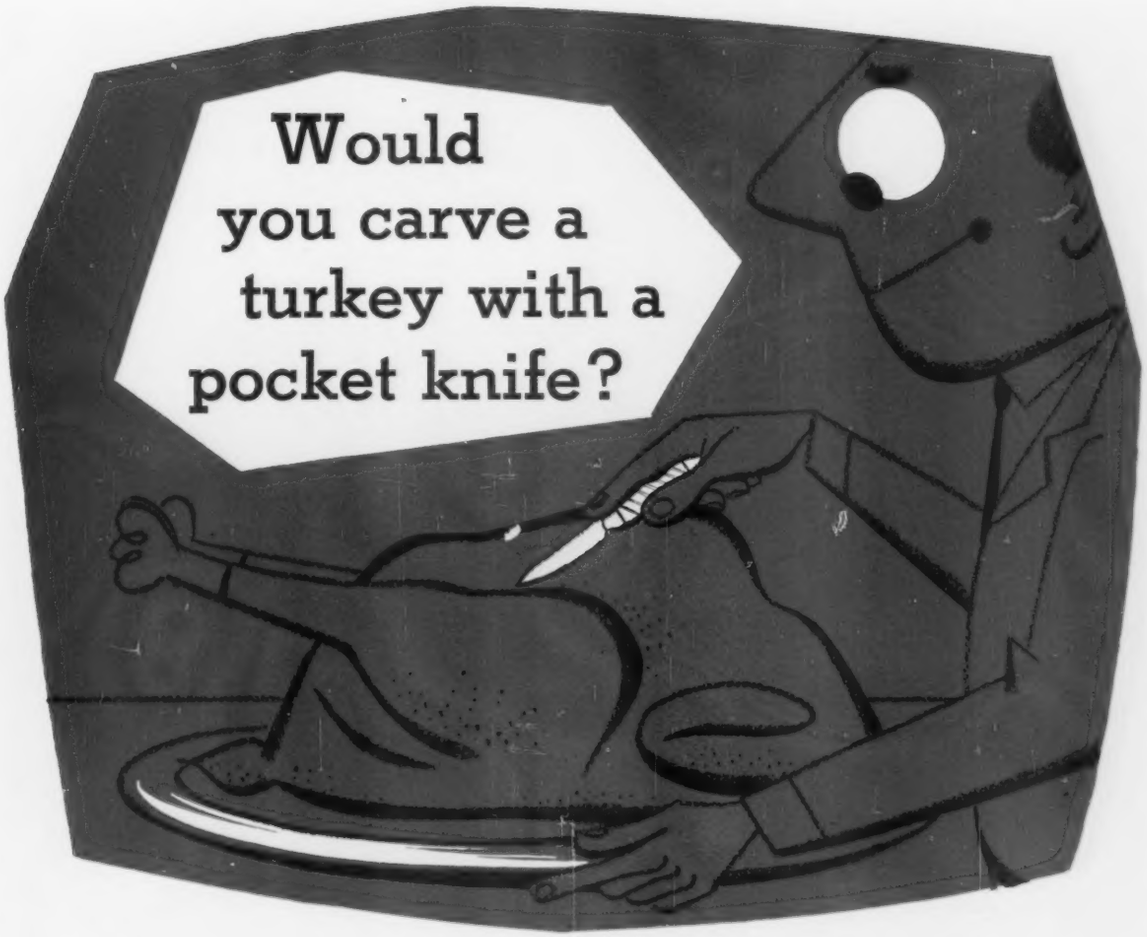
BOLTON EMERSON
TRADE MARK

Filling the Needs of Papermakers: JORDANS • CLAFLINS • FILLINGS • PLUGS • STAINLESS PLUG JACKETS • BEATER BARS AND BED PLATES • SHOWER PIPES • SUCTION BOX COVERS • MAGNETIC EQUIPMENT • MACHINE KNIVES.

IN CANADA: Pulp and Paper Mill Accessories, Ltd. Montreal, P. Q.

IN MEXICO: Manuel Del Castillo 1. La Catolica 45 Desp. 711-712 Mexico (1) D.F.

Longer Life
Faster Drying
SCAPA Synthetic Reinforced*
Cotton Dryer Felt
Type #1164-S and #1166-S
Running up to double life of competitive cotton felts—outrunning asbestos felts in many cases—bringing the advantage of faster drying found only in cotton felts.
Scapa staggered-butt clipper seam using synthetic tapered webbing is engineered to give the extra life required from these longer running Scapa felts.
Prompt, dependable shipments from our new mill at Waycross, Georgia, including all widths from the smallest felt through the widest felts in the country.
*U.S. Patent Application Serial No. 524410
Can be furnished with our famous GREEN DACRON EDGE when desired (U. S. PATENT 2,612,190). These reinforced edges of pure, spun Dacron will outwear the felt, under the most severe conditions.
Morey Paper Mill Supply Company
309 SOUTH STREET, FITCHBURG, MASSACHUSETTS
Sole U. S. Agents for
SCAPA DRYERS, INC.
WAYCROSS, GEORGIA



You could, but it's more efficient to use a carving knife. You always get better results with the knife specifically designed for the job. That's why "OK BATTLE AXE" Chipper Knives improve your chipping operation.

They're especially designed to do the job best, to give you maximum production of uniform chips with a minimum of sawdust and splinters.

"OK BATTLE AXE" superiority begins with the selection of special high alloy steel which is thoroughly and evenly hardened in salt bath furnaces, then carefully tempered to produce dependable, durable blades. Extra-keen OK cutting edges hold up longer under high impact loads without chipping or shelling and deliver longer runs between regrindings than ordinary knives.

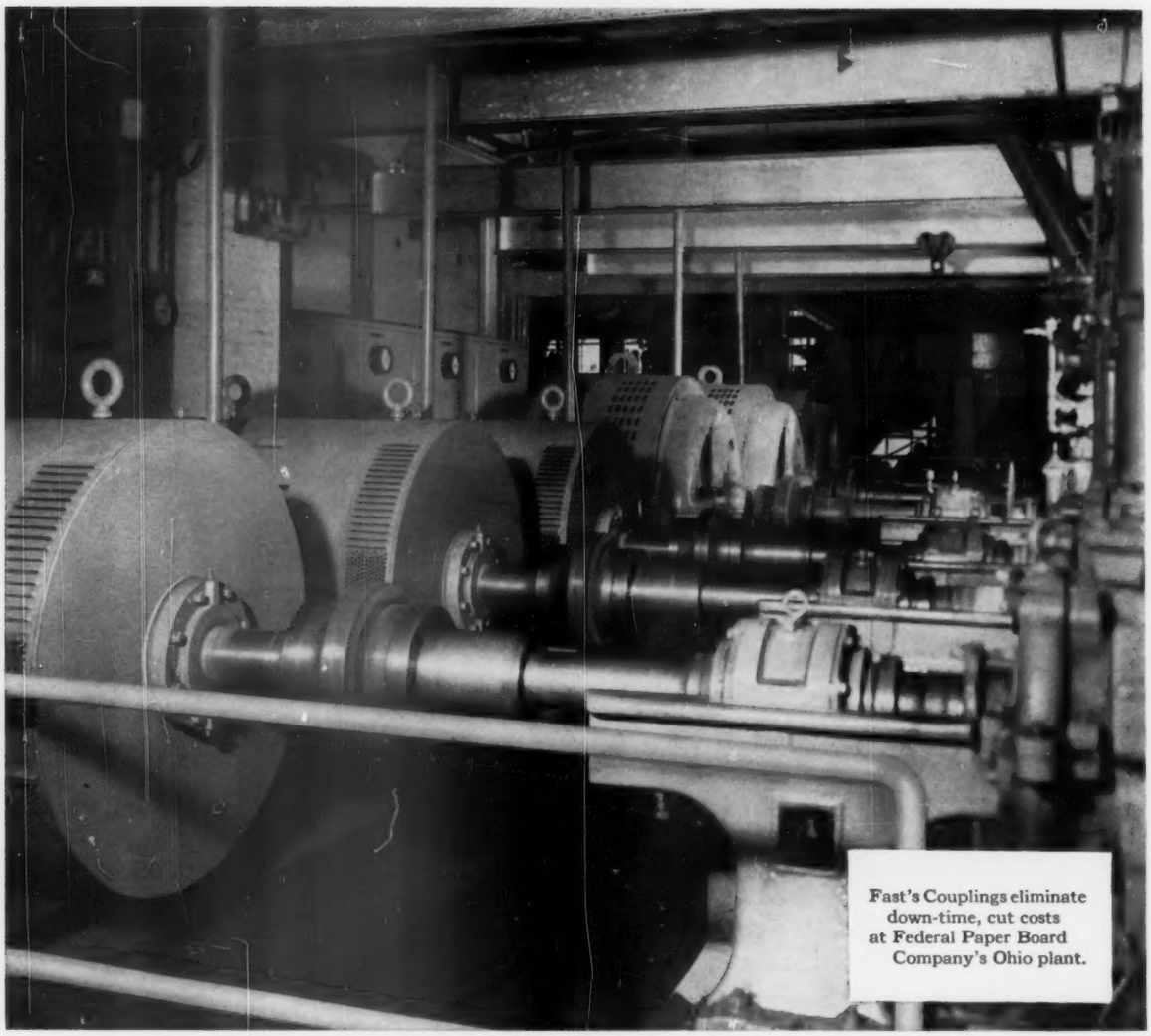
Stop robbing profit to pay for downtime. Improve your overall chipping operation. Specify ... install ... "OK BATTLE AXE" Chipper Knives. Made to fit all makes of paper mill and saw mill chippers. Many sizes are stocked at Cincinnati, Ohio, and Portland, Oregon.

For complete information on "OK BATTLE AXE" Chipper Knives, write Dept. 46-F.

THE OHIO KNIFE CO.

CINCINNATI 23, OHIO

Manufacturers of OK HOG KNIVES, VENEER KNIVES, CHIPPER KNIVES, PLANER KNIVES



Fast's Couplings eliminate down-time, cut costs at Federal Paper Board Company's Ohio plant.

Federal Paper Board Company has specified Fast's Couplings since 1944

In 1944, the Steubenville, Ohio, Mill of Federal Paper Board Company installed three #5 Jordan-type Fast's Couplings to obtain maximum power transmission with minimum down-time. In 1946, this firm installed three additional #5 Fast's Couplings. Again in 1950, Federal Paper Board Company specified Fast's Couplings, three #4½ Jordans.

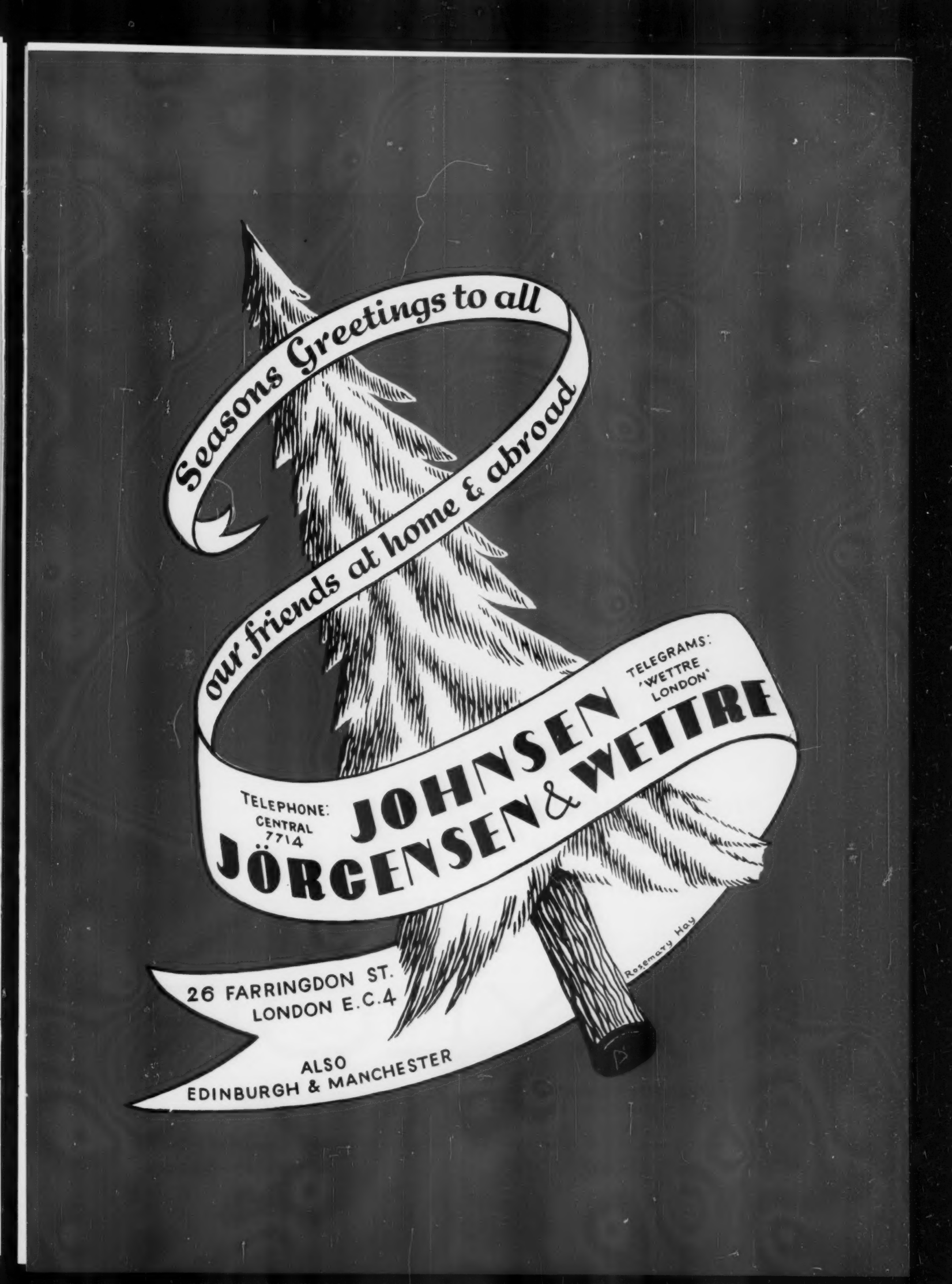
Recently, Mr. R. J. Quinn, master mechanic of this plant, stated: "Not one of these Fast's Couplings has given us any trouble whatever. They're absolutely essential to our plant production. If these Fast's Couplings failed, our plant would be forced to shut down." Mr. Quinn uses many other standard Fast's Couplings throughout the plant, and is completely sold on them.

There's a Fast's Coupling for every power transmission application. Remember: *Fast's Couplings usually outlast the equipment they connect.* For catalog write to: KOPPERS COMPANY, INC., Fast's Coupling Dept., Metal Products Division, 2712 Scott Street, Baltimore 3, Maryland.

Engineered Products
Sold With *Service*

KOPPERS

THE ORIGINAL
FAST'S Couplings


Seasons Greetings to all
our friends at home & abroad
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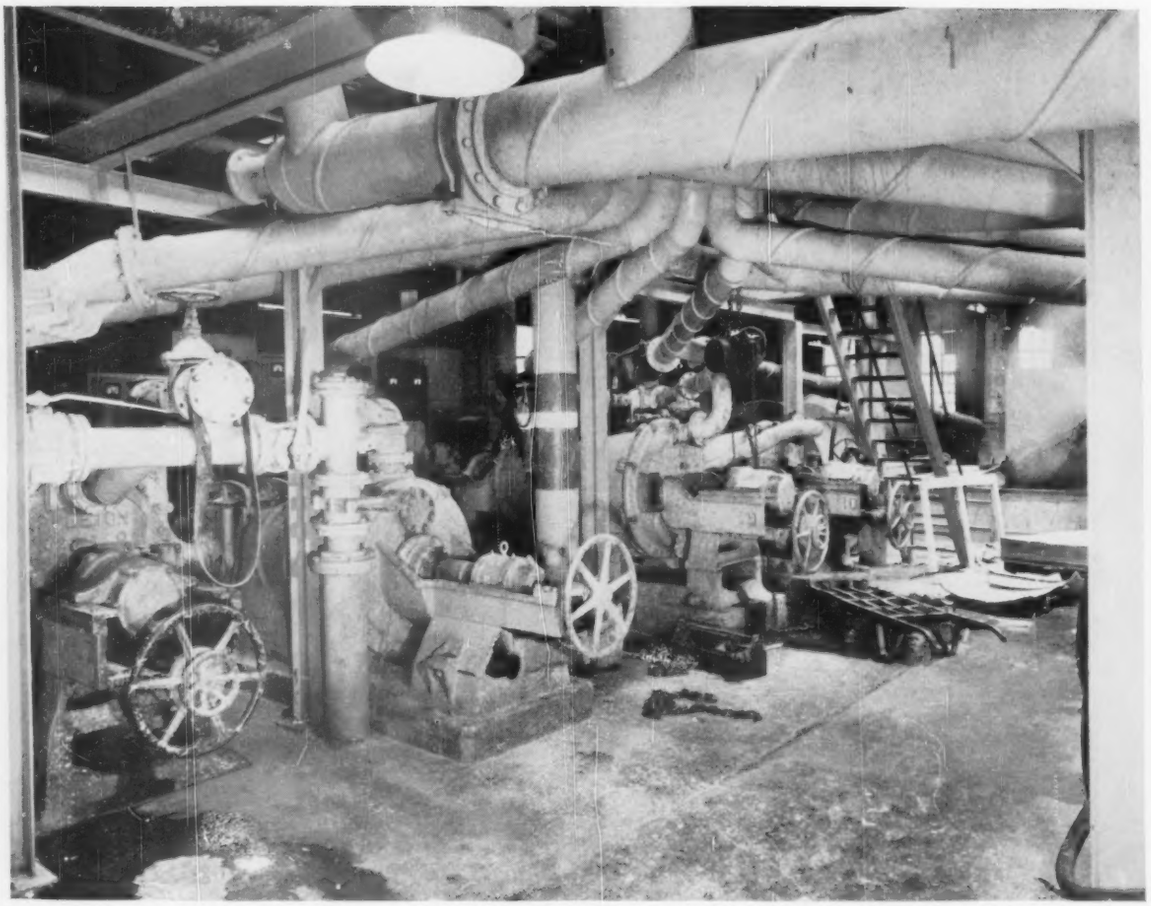


Need **FABRICATIONS** *in Steel, Alloys or Stainless?*

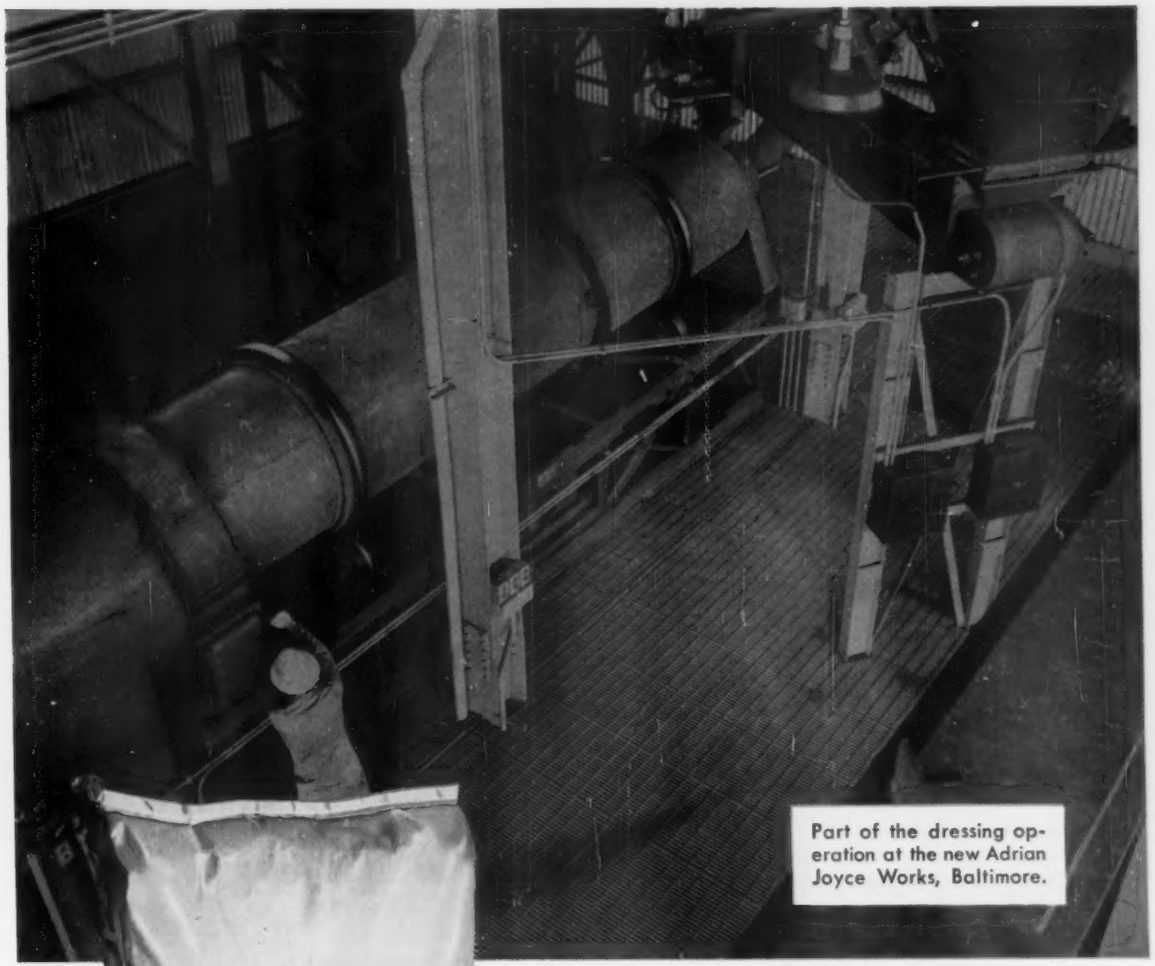
Whether your piping layout is simple or complicated, NAYLOR Spiralweld pipe can be fabricated to meet your exact specifications in steel, alloys or stainless. Combinations of pipe and fittings can eliminate extra flanges and connections to speed installation and cut costs. For stock pipe lengths, standard fittings, special fabrications or engineered layouts, NAYLOR invites your inquiry. Write for Bulletins No. 507 and No. 525 or send specifications for quotation.

NAYLOR

NAYLOR PIPE COMPANY
1271 East 92nd Street, Chicago 19, Illinois

Eastern U.S. and Foreign Sales Office:
350 Madison Ave., New York 17, New York

From the industry's most advanced pigment plant comes...



Part of the dressing operation at the new Adrian Joyce Works, Baltimore.

ZOPAQUE®
TITANIUM DIOXIDE

. . . the whitest white pigment available!

You can count on Glidden to supply your complete titanium dioxide requirements. Our new Adrian Joyce Works at Baltimore more than doubles the available supply of *Zopaque* Titanium Dioxide. Further plant expansions are now being made to help meet your growing needs in the years to come!

Zopaque gives you these advantages:

- Highly accelerated dispersion rate.
- Exceptional hiding power.
- Outstanding gloss and color retention.
- Low reactivity.
- Rutile and Anatase grades.

By the makers of SUNOLITH Lithopones and EUSTON White Lead

THE GLIDDEN COMPANY

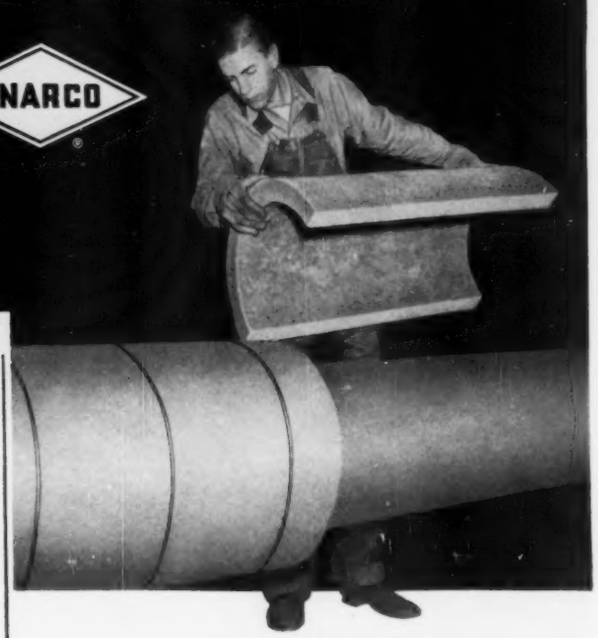
Chemicals - Pigments - Metals Division

BALTIMORE, MARYLAND • COLLINSVILLE, ILLINOIS • HAMMOND, INDIANA • SCRANTON, PENNSYLVANIA

one pipe insulation... **UNIBESTOS®**

for every temperature from 80° to 1200° F.

UNARCO



See how you save!

INVENTORIES SIMPLIFIED—only one type of insulation to stock.

EASIEST TO APPLY—standard methods, regular tools; cuts quickly without shattering or end-breakage. Refractory-coated smooth surface.

RESISTS IMPACT—virtually impervious to shock and vibration. Built to stay strong indefinitely.

WITHSTANDS MOISTURE, FUMES—insulating capacity is unchanged by long exposure to various chemical fumes. Submerged in water for weeks, it dries good as new.

POSITIVE HEAT-LOSS PROTECTION — No shrinkage; calcination and dehydration practically eliminated.

LOW THERMAL CONDUCTIVITY—means high insulating efficiency.

HEAT-TIGHT JOINTS—the fibrous nature of Unibestos leads to interlacing between sections for effective heat-sealing of joints.

SINGLE-LAYER APPLICATION—tests prove less heat loss with single-layer UNIBESTOS than with other double-layer insulations.

There's nothing like UNIBESTOS

If you're not using UNIBESTOS now, it's time to take a new look at pipe insulation. Costs come down all along the line with this all-purpose, long-lasting protection.

UNIBESTOS is quickly adapted for flanges, valves, fittings—needs no canvas cover, no additional protection within buildings. Shrinkage is negligible, even at 1200°, and it may be removed and re-used time after time without damage or loss of efficiency.

Long the world's largest selling high-temperature pipe insulation, today's UNIBESTOS is the one *all-temperature* pipe insulation. It costs no more, and only *one* insulation need be stocked on the job.

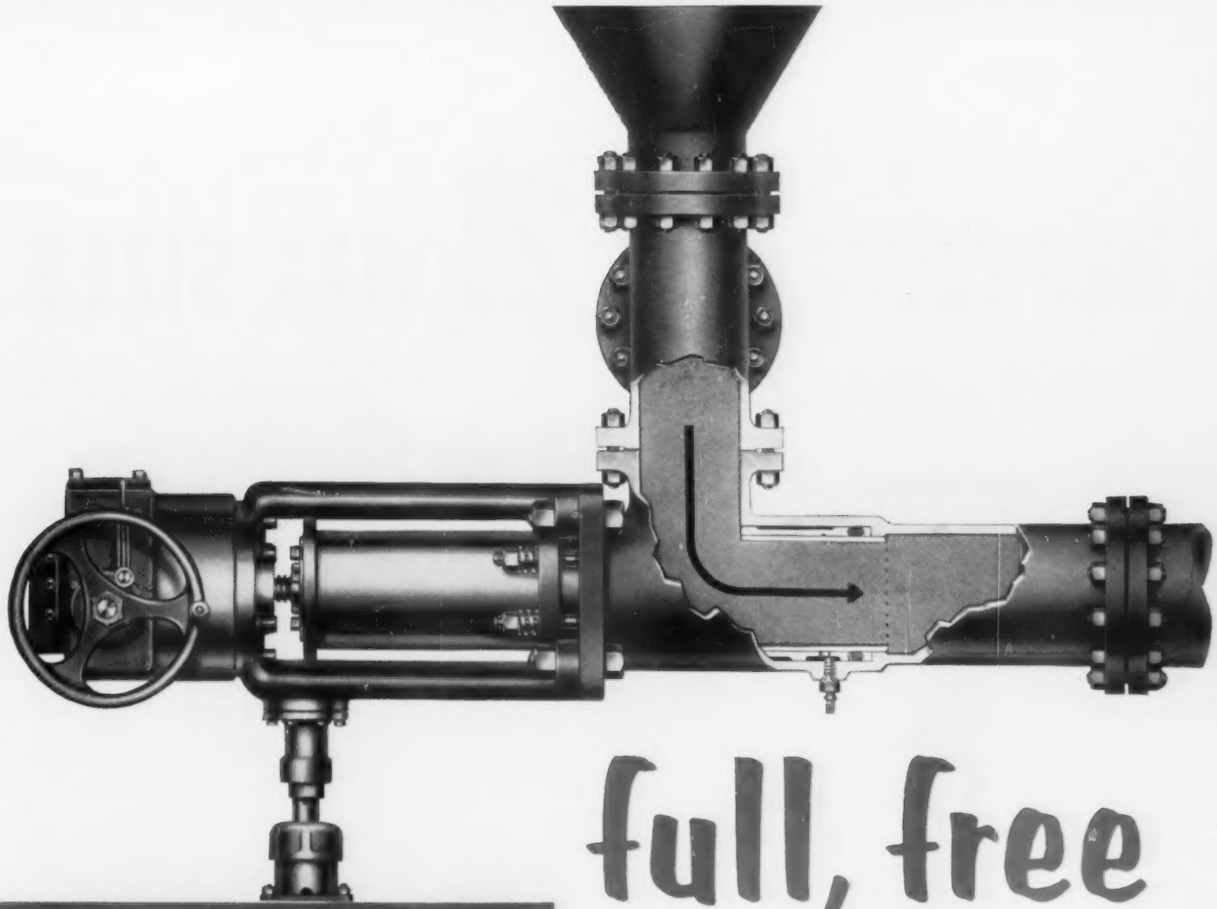
Small and thin or big and thick, sizes to 44" O.D. Made from long-fibered Amosite asbestos. UNIBESTOS assures outstanding economy, whatever the service or temperature.

HOW THICK SHOULD PIPE INSULATION BE?

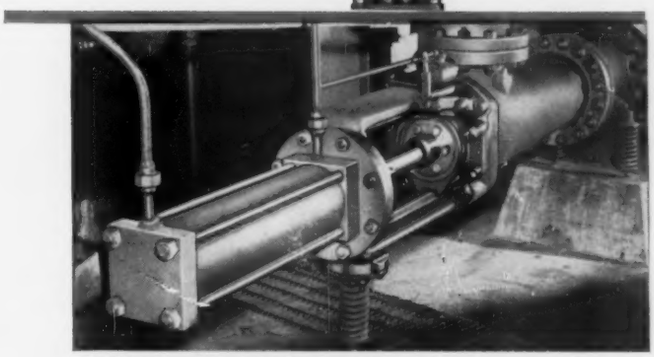
Ask for UNARCO'S free 40-page Booklet F76-312 with exclusive "J" Factor Tables for easy, scientific thickness selection according to cost of fuel, hours of operation, life expectancy of installation, pipe size, temperature, and cost of insulating.

UNION ASBESTOS AND RUBBER COMPANY

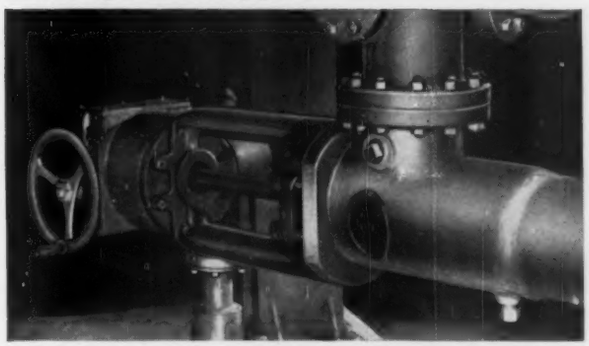
1111 West Perry Street, Bloomington, Illinois



full, free digester discharge



HYDRAULIC-OPERATED Yarway Digester Blow Valve—one of six installed at large North Carolina paper mill.



MOTOR-OPERATED Yarway Digester Blow Valve—one of eight installed at large Canadian paper mill.

Digesters blow fast and clean with YARWAY Seatless Blow Valves.

The hollow sliding plunger has no pockets where wood chips or tramp materials can hang up.

All Yarway Digester Valves have full pipe area, permitting fast discharge with minimum pressure drop. Comparisons show more discharge area . . . reducing blowing time, increasing number of cooks.

Scores of pulp mills report *lower operating costs* and *increased production* due to YARWAY Digester Blow Valves. One large mill found *savings in operation and maintenance the first year more than paid the cost of their 4 new Digester Valves!*

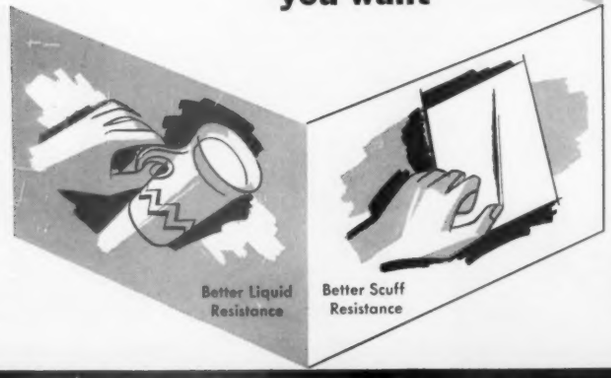
YARWAY Seatless Digester Valves can be furnished either with electric motor or hydraulic cylinder units. Both are remote controlled. Bulletin B-441 gives the whole story. Write for it.

YARNALL-WARING COMPANY
103 Mermaid Avenue, Philadelphia 19, Pa.
BRANCH OFFICES IN PRINCIPAL CITIES

YARWAY · · **DIGESTER BLOW VALVES**

NOPCO OFFERS 21 WAX SIZES

to give your paper every combination of properties you want



Nopco Wax Sizes perform at least 4 important functions to help you make high quality paper and board that will give you an edge in today's highly competitive market.

1. Improve those properties which are difficult or impossible to obtain with rosin sizes.

2. Lower your sizing *costs* by replacing 30% to 50% of rosin size.

3. Improve the sizing of fortified rosin sizes.

4. Enhance the surface qualities of your paper and board, when used either alone or in conjunction with starch or other film-forming materials.

With any of these sizes goes the skilled counsel and wide experience of Nopco's paper technicians. They will welcome the opportunity to work with you on the toughest problems you have. Write today for their recommendations.
Nopco Chemical Company, Harrison, N. J.

NOPCO WAX SIZE SELECTOR CHART

	All Wax Acid Stable Nopco 1055 Series										Rosin-Wax Acid Stable Nopco 1155 Series				All Wax Alkaline Stable Nopco 1255 Series			Nopco Special Series			
	A	B	C	F	K	L	M	N	W	X	A	B	C	L	A	M	X	1245A	2252	KKE	KKE-1
Improved Finish	✓	✓	✓		✓	✓		✓		✓	✓				✓		✓	✓	✓		
Improved Fold	✓		✓				✓			✓					✓	✓	✓		✓		
Improved Calender Staining	✓									✓					✓		✓				
Oil Resistance							✓						✓			✓				✓	✓
Ink Resistance		✓	✓							✓		✓		✓			✓	✓	✓	✓	
Blood Resistance		✓					✓			✓				✓			✓	✓	✓		
Lactic Acid Resistance				✓				✓					✓								✓
Hot Liquid Resistance								✓					✓								✓
Grease Resistance		✓	✓				✓			✓											
Scuff Resistance		✓	✓				✓		✓	✓		✓	✓								✓
Printing Qualities	✓	✓			✓					✓	✓	✓	✓		✓		✓		✓	✓	
Starch Coating Lubricant	✓				✓	✓				✓					✓		✓	✓	✓		
Decrease Fuzz	✓	✓				✓				✓					✓		✓	✓	✓		

1907–1957 50 Years OF PROGRESS IN CHEMISTRY

NOPCO

PLANTS: Harrison, N. J. • Cedartown, Ga.
Los Angeles, Richmond, Calif. • London, Canada

NEW! direct tank-mounted LIQUID LEVEL TRANSMITTER

Exclusive static pressure connection for closed vessels above or below atmosphere . . . eliminates need for second instrument.

This sensing diaphragm capsule flange-mounts directly on side of tank. All wetted parts of Type 316 stainless steel, with optional plastic coating for further corrosion protection.

with DIRECT 3-15 psi air output signal

IDEAL FOR: Blow tank level – Brown stock washer filtrate tank level – Stock level and seal boxes – any pulp or paper mill fluid

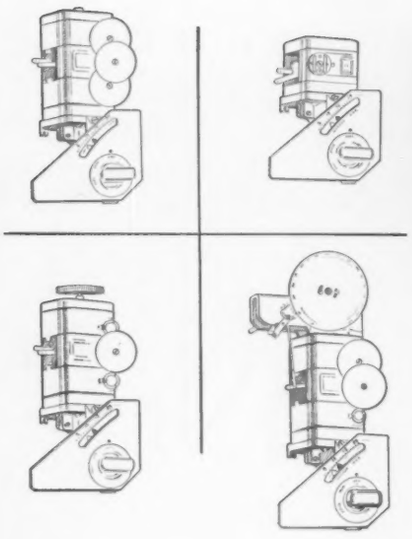
Now you can measure the level of any "difficult" or easy-to-measure fluid — economically, without the complication of floats or bubble tubes, and with *sustained high accuracy over the entire range span.*

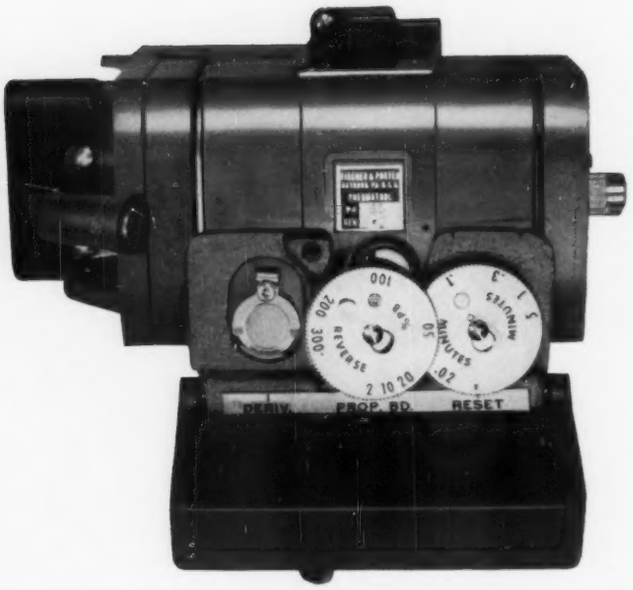
Flange-mounted directly to the side of an open or closed tank, the Type 13FA Transmitter eliminates piping and purging. Its stainless steel diaphragm capsule senses level changes instantly. Conventional tubing leads its output air signal directly to standard 3-15 psi receiver-recorders and controllers without need for intermediate signal converters.

Wherever level measurement is a problem, the 13FA provides an accurate, trouble-free solution. Write for detailed information, or ask your nearby Foxboro Field Engineer to explain its application to your specific process. **The Foxboro Company, 9912 Neponset Ave., Foxboro, Mass., U.S.A.**

FOXBORO
REG. U.S. PAT. OFF.

LIQUID LEVEL TRANSMITTERS





NOW . . . the P-4 controller is better than ever!

Back from a thorough redesign, the P-4 has more to offer than ever before. All the advantages proved in years of actual use have been retained . . . and more have been added. Chief among the improvements resulting from this complete re-evaluation are:

- Even *lower* steady state air consumption—and increased amplifying relay capacity
- Improved linearity plus increased gain in the error detection network
- Greater independence from dirty air supply
- Easily accessible external alignment adjustments
- Improved frequency response characteristics
- Greater flexibility—new "Universal" design provides 2-50% proportional action, on-off controller action, 2-100% differential gap action—in *one controller!*

Brilliant instrument design has permitted all these improvements with no change in bellows construction or motion balance principle of operation. In-case models still feature completely integrated *in-the-case* accessories, free of troublesome links or complex external members. And they can still be mounted left or right with equal ease, permitting two to a single case if desired. Of course, a complete line of plug-in models for use with miniature instruments is still available.

If you'd like to investigate the renewed P-4B controller first hand, call in the Fischer & Porter field engineer serving you . . . or write for new Catalog 53P-4000 to Fischer & Porter Co., 2227 County Line Road, Hatboro, Pa. In Canada, write Fischer & Porter (Canada) Ltd., 2700 Jane Street, Toronto, Ontario.

PERFORMANCE SPECIFICATIONS • SERIES 53P—P-4B CONTROLLERS

Output pressure—*3 to 15 or 3 to 18 psig*

Set point and process pressures for field or plug-in models—*3 to 15 psig*

Index tracking at any output pressure—*within 1% of scale (Reset controller)*

Temperature limit—*225 F*

Supply pressure—*17 to 22 psig*

Zero frequency gain (Reset controller)—*approximately 300*

Derivative gain—*approximately 12*

Field mounting manifold cut-off valve—*air to open*

Steady state air consumption—*0.08 scfm*

	In Case Controllers	Plug-In And Field Mounted
On-off	53PR 4101	
"Universal" controller; 2-50% proportional, on-off, and 2-100% differential gap	53PR 4241	53PN 4240
Proportional only	53PR 4301	53PN 4300
Proportional plus fast derivative	53PR 4411	53PN 4410
Proportional plus slow derivative	53PR 4421	53PN 4420
Proportional plus fast reset	53PR 4511	53PN 4510
Proportional plus slow reset	53PR 4521	53PN 4520
Proportional plus fast derivative plus fast reset	53PR 4611	53PN 4610
Proportional plus fast derivative plus slow reset	53PR 4631	53PN 4630
Proportional plus slow derivative plus slow reset	53PR 4621	53PN 4620
Ratio—Proportional plus fast reset	53PP 4511	

FISCHER & PORTER CO.
Complete Process Instrumentation

They packed up turbine oil worries at Alton Box Board

six turbines use NONPAREIL Turbine Oil, have life-of-turbine guarantee

Six NONPAREIL Turbine Oil guarantee certificates on the turbine room wall are pointed out by M. D. Jones, Superintendent of the Power and Steam Department. Standard Oil Company's lubrication engineer, W. P. "Sandy" Wehking, helped put most of the certificates there.

Alton Box Board Company, Alton, Illinois, doesn't have a worry in the world about turbine oil. The Company has six turbines in service—four in the power plant and two in the paper mill—all using NONPAREIL Turbine Oil. Why no worries? Because each of these fills of turbine oil is *guaranteed for the life of the turbine* not to exceed a neutralization number above 0.15 mg. KOH/g.

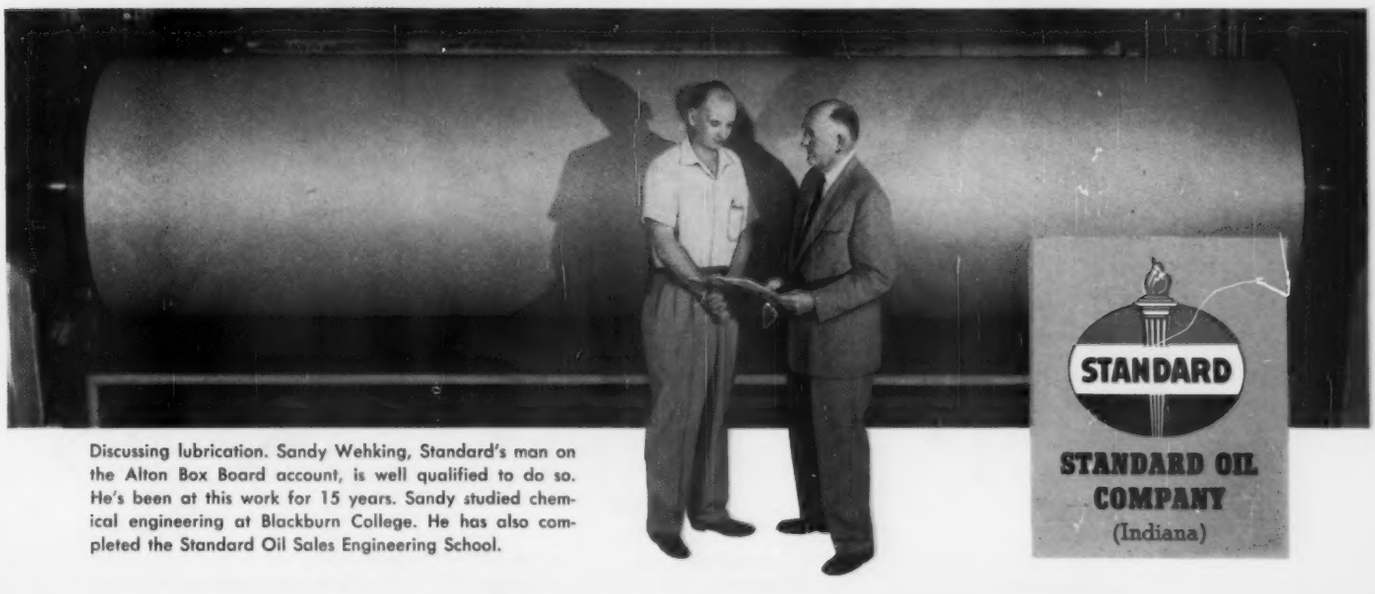
The five Westinghouse and one G-E turbine oil fills have demonstrated a remarkable low acidity record over the years. Regular inspection by Standard Oil technical service representatives and analysis of oil samples by the Standard Oil Research Laboratory, Whiting, Indiana, makes sure the oil is performing in accordance with the guarantee. At Alton Box, neutralization number of the oil has been running 0.02 to 0.03 mg. KOH/g.

This is what such service from a turbine oil means to Alton Box Board: They can run one of the largest board mills in the world without having to concern themselves with the performance of the turbine oil they are using. Standard Oil technical service men inspect the system. The oil is sampled and analyzed regularly. Plant operation will never be interrupted because of turbine oil lubrication failure.

The same performance from NONPAREIL Turbine Oil and service from Standard Oil awaits you. Find out. Call your nearby Standard Oil office near you in any of the 15 Midwest and Rocky Mountain states. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

How NONPAREIL Turbine Oil is performing at Alton Box Board

Make of Turbine	kw. (H.P.)	Year NONPAREIL Installed	Location	Gal. fill.	Neut. No. mg. KOH/g.
Westinghouse	1,500	1934	Power Plant	85	.02
Westinghouse	3,125	1936	Power Plant	275	.03
General Elec.	400	1936	Paper Mill	50	.02
Westinghouse	1,500	1941	Power Plant	250	.03
Westinghouse	5,000	1947	Power Plant	230	.03
Westinghouse	1,500	1947	Paper Mill	80	.02



Discussing lubrication. Sandy Wehking, Standard's man on the Alton Box Board account, is well qualified to do so. He's been at this work for 15 years. Sandy studied chemical engineering at Blackburn College. He has also completed the Standard Oil Sales Engineering School.

STANDARD

STANDARD OIL COMPANY
(Indiana)

SOLVE YOUR BROKE HANDLING PROBLEMS

Do it the easy way with an Automatic

Black-Clawson Broke Pulper

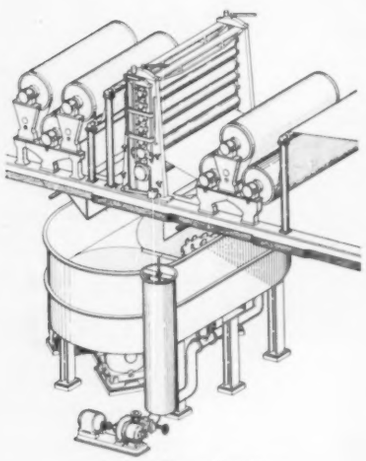
Are obsolete broke handling methods cutting into your profits? The old fashioned way to handle broke was to fork it, cart it, stamp on it, contaminate it and worry it into a beater.

The modern way, actually the cleanest and safest way, is to handle it automatically — by remote control. Locate the pulper under the paper machine and let broke coming off the machine feed directly into it. Every mill has a specific broke handling problem and Black-Clawson can furnish an efficient, economical broke pulper to meet any requirement, three sizes of refiners for defiberizing and hydraulic roll splitters to split reject rolls. Check over these new ideas in broke repulping equipment which have been proved in operation. Then, take a close look at *your* broke handling set-up. If it's time to modernize, let a Black-Clawson engineer make recommendations. Contact the Shartle Division, Middletown, Ohio. Ask for descriptive Bulletin 23-SB.

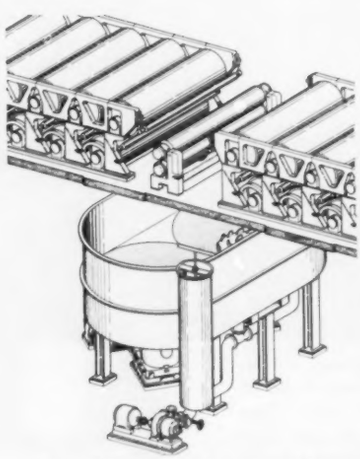
Takes Full Sheet Width Broke

The Duopulper takes more broke with less confusion than any other mechanism. It's a rugged piece of equipment that requires little head room — will fit under most paper or board machines. Installed in one of several locations under the machine it will take a full width web as fast as it leaves the machine and slush it quickly and efficiently.

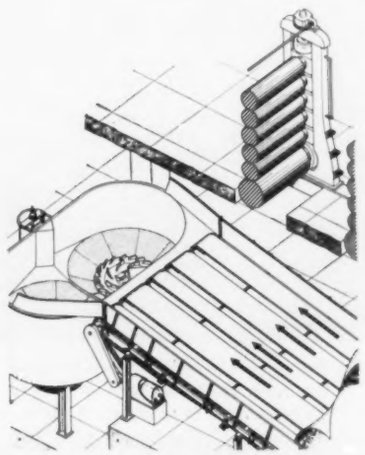
The Duopulper is an oblong fabricated steel, stainless or tile tub equipped with two powerful Hydrapulper rotors and drives. Can be equipped with regulating box and motorized control gate for automatic operation.



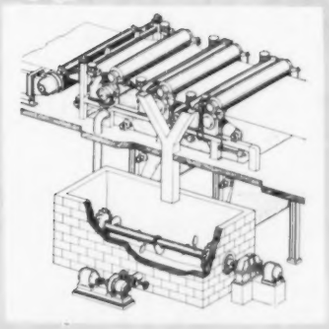
Under the calenders preceding after-dryers



Duopulper under size, smoothing press or coater in dryer section



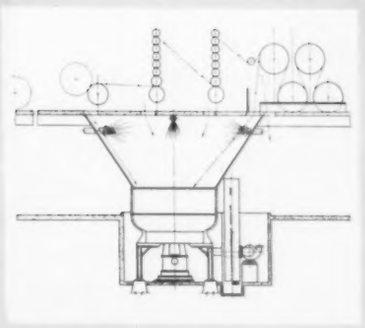
Automatic Broke Handling system using Duopulper and Broke Conveyor



New Hydrabreaker

Low operating cost is the main advantage of this pulper. Horsepower consumption is small due to use of horizontal shaft with series of variable pitch propellers and one or more Hydrapulper rotors. Tub can be steel, tile or concrete.

Single shaft type for wet broke under the presses. Double shaft used for dry broke under last dryer.



Broke Hydrapulper

Standard unit for continuous operation (batch optional) with flared, hopper-type tub located under dryers or calenders. All machine broke or trim can be directed by chute or conveyor into tub, quickly and thoroughly repulped and pumped back into system. No dirt or oil—no hauling, no waste or confusion. Can be automatically, remotely controlled. Several sizes available.

Off the Machine or Finishing Room Broke

HC—Hydrapulper Ideal for broke applications. Built with welded steel tub, welded steel rotor, pillow block mounted "V" belt drive or standard Hydrapulper drive. Range 5′ to 17′ tub diameter.

Hydraslusher...a side drive slusher with low head room. A practical, economical installation for repulping machine broke, finishing or converting room broke. Tub can be steel, cast iron, stainless steel, tile, or concrete.

Put Your Entire Broke Pulping Operation Under

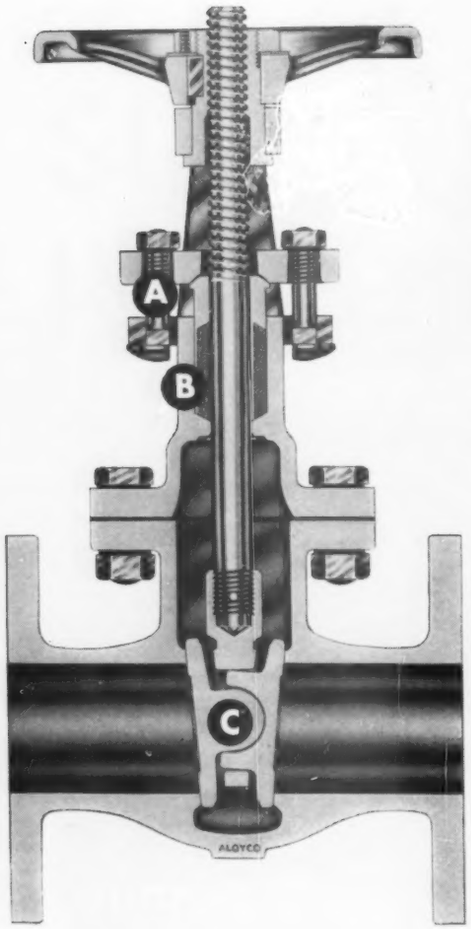
Remote Automatic Control

A Black-Clawson broke handling system, starting and stopping the pulper, make-up water and dump pumps, can be automatically controlled in several ways. A photo-electric cell arrangement with the light source on one side of the sheet actuates a relay when a break occurs. Make-up water pump and pulper are started automatically. Dumping, water level and other factors remain under control until the break is repaired and the sheet is running through the machine. If preferred, remote push-button control can be substituted for the electric eye arrangement.

THE BLACK-CLAWSON COMPANY

SHARTLE DIVISION, MIDDLETOWN, OHIO

Executive Offices	250 PARK AVE., NEW YORK, N. Y.
Pulp Mill Equipment	PANDIA DIVISION, Hamilton, Ohio
Paper and Board Machines	PAPER MACHINE DIVISION, Watertown, N. Y.
Converting Machinery	DILTS DIVISION, Fulton, N. Y.
Canadian Sales and Manufacture	BLACK-CLAWSON (CANADA) LTD., Montreal, P.Q., Canada
British-European Sales and Manufacture	BLACK-CLAWSON INTERNATIONAL LTD., London, England
District Sales Offices	Atlanta, Ga. • Downingtown, Pa. • Appleton, Wisc. • Portland, Ore.



This Aloyco 18 8SMO Stainless Steel valve cuts maintenance costs in corrosive service

• Prevent valve corrosion from eating into your production and profits!

How? Look to Aloyco, the world's largest specialists in the manufacture of corrosion-resistant valves, for the valve design and alloy that will give lasting, maintenance-free performance.

Mechanically, this Aloyco Gate Valve 111 is evidence of the careful attention given every detail of construction that marks Aloyco's complete line. To determine the best materials for each specific application, our engineers will be glad to pre-test various alloys under your actual line conditions and base their recommendations on actual service data.

If you have a problem of valve maintenance or replacement because of corrosion, write to Aloyco's Corrosion Engineering Service about your own valve needs. Or call your nearest Aloyco distributor.

ALOYCO 111 GATE VALVE

Advanced features of these valves increase their corrosion-resistance

A. Rocker type gland plates and gland followers.

B. Teflon packing for stuffing box (optional).

C. Double disk, ball-and-socket type wedges.

• Double disk ball-and-socket type wedges are free to rotate and are non-fouling in any position to assure pressure tightness on both seats.

• Stuffing boxes may be repacked with Teflon or conventional packing material even when valve is under pressure and wide open.

• Rocker type gland plates and guided gland followers prevent marring of the stems when repacking.

• Handwheels keyed to yoke-bushings for easy disassembly.

• All parts of corrosion-resistant alloy except yoke-bushings, yoke-bushing nuts and handwheels. Available from ½" to 12".

• Valves also available in other alloys in accordance with service requirements.

7.20

ALOYCO 18 8SMO

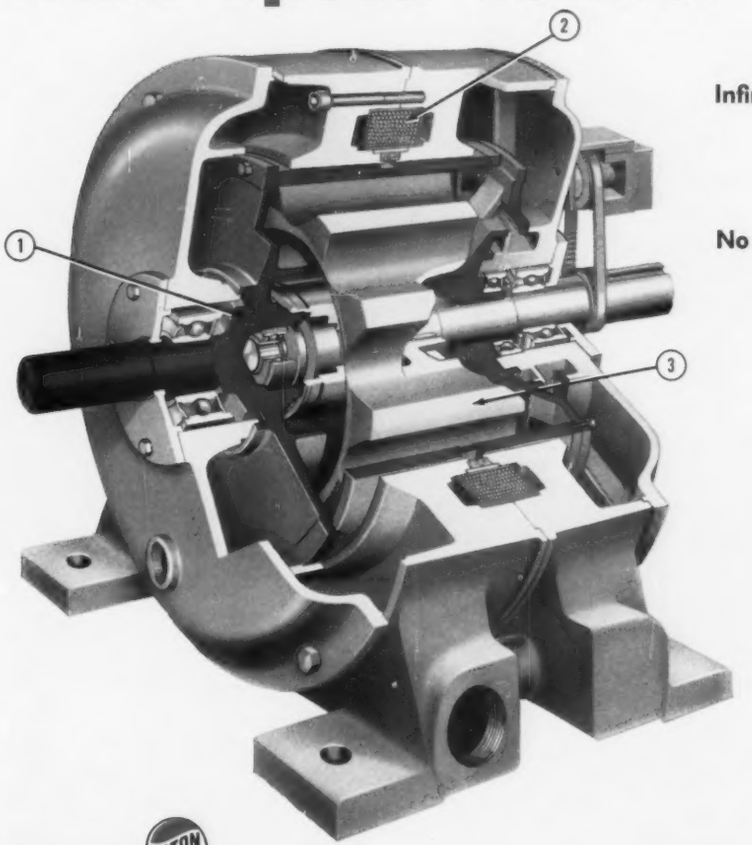
The further alloying of Aloyco 18-8S with molybdenum widens its field of usefulness. This enables the alloy not only to resist oxidizing solutions but also increases its resistance to reducing agents and decreases its tendency toward pitting. This alloy is widely used in the sulfite pulp industry and in processing of phosphoric acid and its derivatives.

ALLOY STEEL PRODUCTS COMPANY

1316 West Elizabeth Avenue, Linden, New Jersey

PLANTS: Linden, N. J.; Bloomfield, N. J.; Elizabeth, N. J.

Want Speed Control Like This?



Infinitely adjustable speed from AC power source

★

Wide speed range

★

No commutators, rings, brushes, or rotating coils

★

Instantaneous response

★

Remote control

★

Low power losses

★

Quiet, efficient operation

★

Simple construction

★

Low maintenance cost

1. Input Drum Assembly
2. Stationary Field Assembly
3. Output Rotor Assembly

EATON

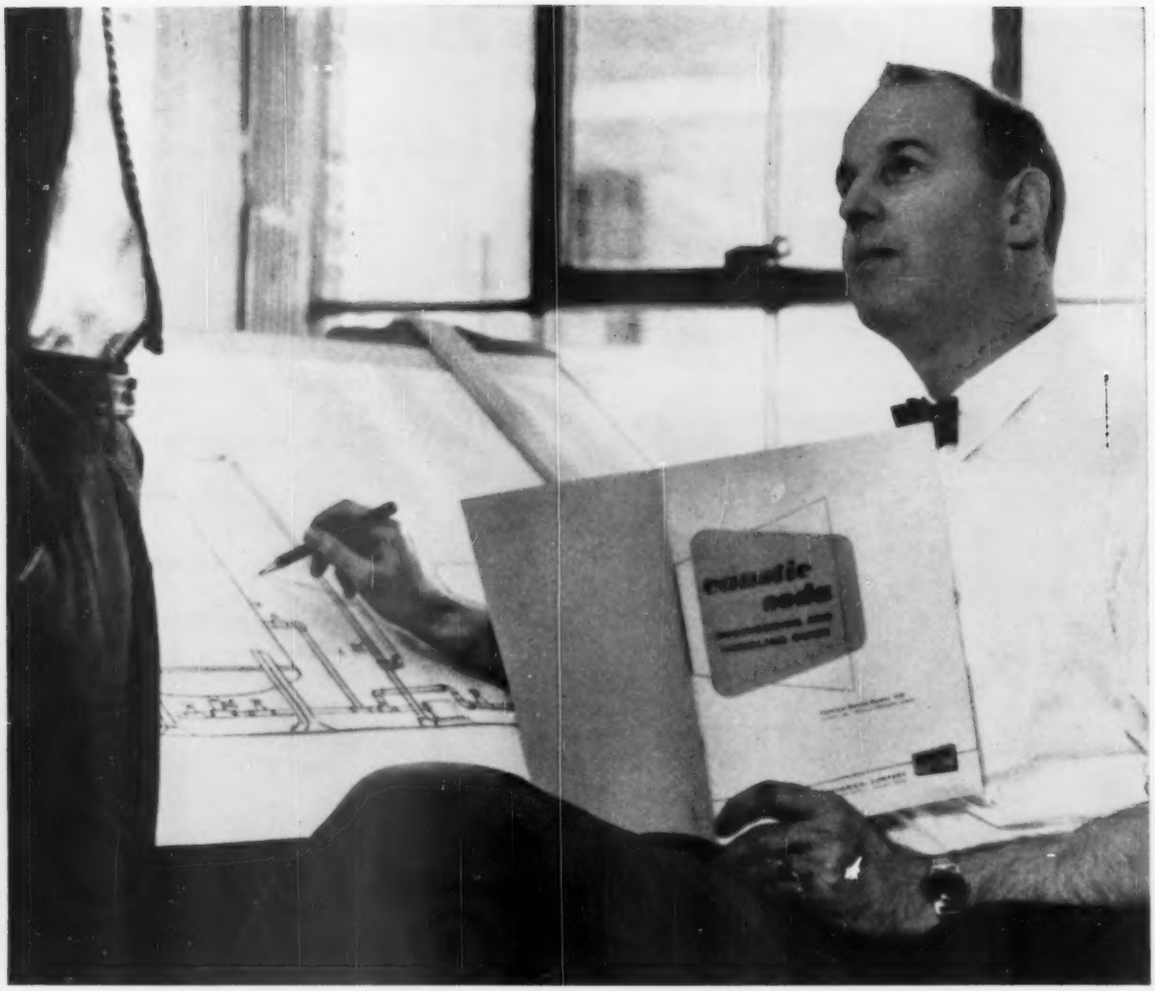
DYNAMATIC®

Eddy-Current Equipment is the Answer!

Dynamatic Eddy-Current Drives, Couplings and Brakes are the solution to difficult speed control problems—in both original equipment and factory installations. Smooth, stepless acceleration and deceleration are achieved without mechanical contact between rotating members. Eddy-current braking provides cushioned, controlled stops. Dynamatic electronic or magnetic amplifier controls, in conjunction with these units, assure wide latitude in operating functions. For efficient, economical speed control, investigate Dynamatic Eddy-Current Equipment.

Send for
Illustrated Literature Describing
Dynamatic Eddy-Current Equipment

EATON — DYNAMATIC DIVISION
MANUFACTURING COMPANY
3307 FOURTEENTH AVENUE • KENOSHA, WISCONSIN



NEW HOOKER MANUAL helps you store and handle caustic soda safely

This new manual gives you 40 pages of information and advice on how to handle and store liquid caustic soda safely, efficiently, and with minimum risk of contamination.

Here are some of the contents:

- ✓ Large, detailed diagrams of equipment to use in unloading, diluting and storing.
- ✓ Commonly used methods for unloading a tank car of liquid caustic soda, for diluting to different strengths, and for storing.
- ✓ A section on safety precautions and first aid.
- ✓ A section on materials of construction.
- ✓ 18 charts, graphs and tables to help you predict and control the behavior of liquid caustic under a wide range of operating conditions. These cover such properties as dilution temperature, vapor pressure, viscosity, specific heat, etc.

For your copy of this new manual, write us today or use the coupon.

HOOKER CHEMICALS PLASTICS

HOOKER ELECTROCHEMICAL COMPANY

Niagara Falls Tacoma Montague, Mich. New York Chicago
Los Angeles Philadelphia Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B. C.

HOOKER ELECTROCHEMICAL COMPANY
1[illegible]2 Forty-seventh Street, Niagara Falls, N. Y.

Please send me a copy of Bulletin 102, *Caustic Soda Engineering and Handling Guide.*

NAME.....

TITLE.....

COMPANY.....

STREET.....

CITY..... .....STATE.....

E.D. Jones Adapta-Plug

Here's Proof
In a large East Coast mill* an Adapta-Plug was recently refilled for the first time. Used in a Jones Majestic Jordan, with Nowave Fulbar Shell Filling not only had it outlasted previous plug fillings, by 50% to 100%, but the bars—worn to 1-1/4" from their original 2"—were perfectly straight.
Most impressive, however, was the time required for the refilling . . . a total of only 6 hours for the complete strip and refill operation.
* name on request
Inverted wedge type sizing is the same for all bars — change fillings to meet any condition without changing plug.

The strongest, most adaptable most economical plug ever!

Growing continually in popularity, this completely bandless Jordan plug — a revolutionary advance in plug design, exclusive with Jones — is more easily stripped and filled, holds bars more firmly in place, reduces slot wear and corrosion, and affords a versatility of use never before obtainable. Available in solid plug, or Meehanite sleeve form for easy changeover on old plugs. Ask your Jones representative or write today for Bulletin EDJ-1094.

E. D. JONES & SONS COMPANY
Pittsfield, Massachusetts
Builders of Quality Stock Preparation Machinery
IN CANADA: The Alexander Fleck, Ltd., Ottawa

Expert Agents: **CASTLE & OVERTON, INC., New York 20, N. Y.**
Foreign Licensees: **FRANCE Batignolles-Chatillon • SPAIN Gabilondo • ITALY de Bartolomeis • JAPAN Mitsubishi •**

now 700 ~~OVER 300~~ FULBAR SHELL FILLINGS IN USE

The rigidity and accuracy of Fulbar one-piece construction eliminates keys and wedges, fits the shell body of any Jordan — readily compensates for inequalities which would make precise fitting of a sectional filling a problem. Amazingly easy to install . . . easy to grind in, too . . . and no sharp ends on bars to form strings or lumps. Many more new advantages, too . . . write today for details and names of satisfied users.

BENCH-SCALE DISTILLATION EQUIPMENT. The Center has various types and sizes of apparatus to distill any size sample from one cc to a tank-car load.

Unique Lummus Engineering Development Center—30 Minutes From Manhattan—Proves Out Processes Before Construction

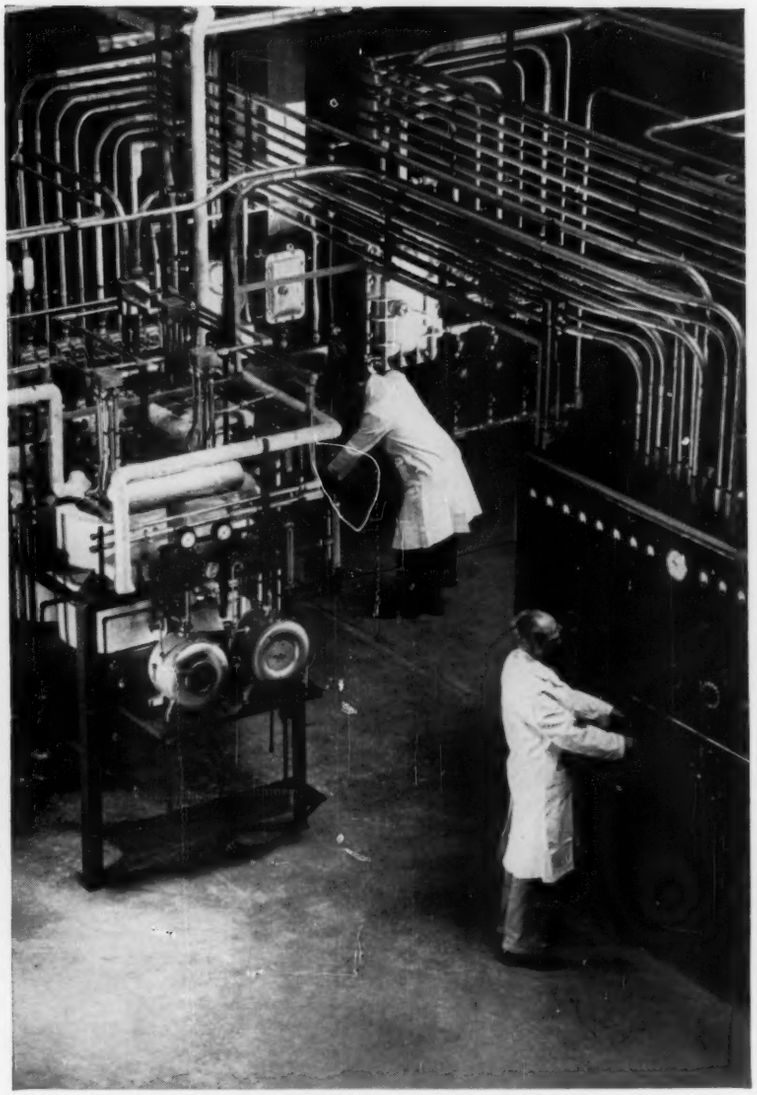
At a new 150,000 square-foot Center near the Newark Airport, the Lummus Company is expanding a long-established engineering development program into a major service to the process industries. The intensive pilot plant investigations carried out here will, in the years to come, spell the difference between rash gamble and sound plant investment for many manufacturers in the chemical, petroleum, pulp and paper and allied fields.

For a complete description of The Center and how it can help you bridge the gap between laboratory research and successful production, write for the 16-page brochure "Lummus Engineering Development Center." Address The Lummus Company, 385 Madison Avenue, New York 17, New York.

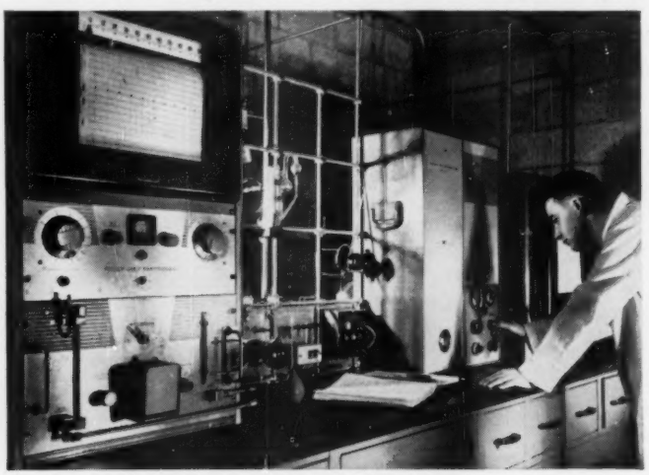
LUMMUS

ENGINEERS AND CONSTRUCTORS FOR INDUSTRY

NEW YORK • HOUSTON • BATON ROUGE • CHICAGO • MONTREAL
CARACAS • LONDON • PARIS • THE HAGUE • BOMBAY

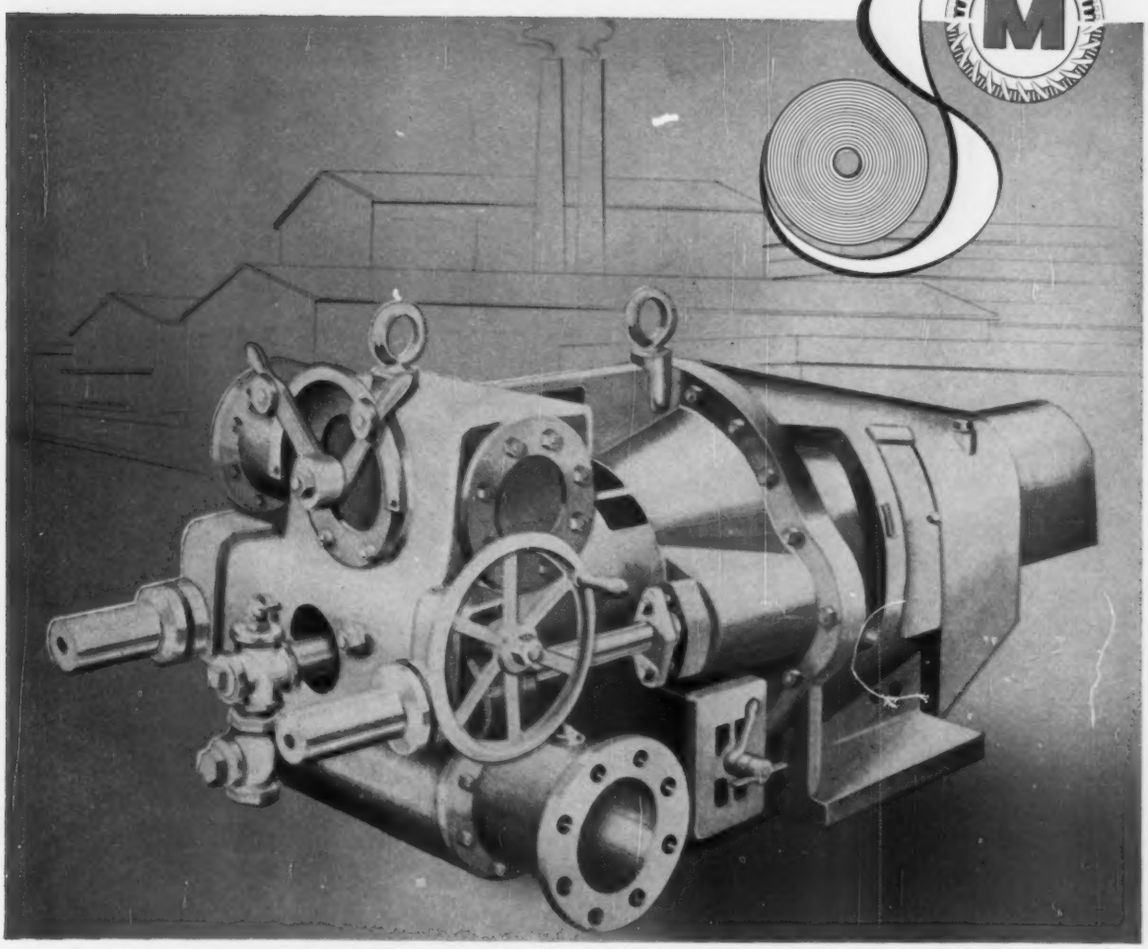


MOST PILOT UNITS at The Center are put together from standard "building blocks." Skid-mounted charging units such as the one at left hold tanks, heaters and pumps for transfer and metering. Process equipment, here shown in background center, can be widely varied. At right is electrical control cabinet. All switches, relays and controls not housed in explosion-proof boxes are enclosed in cabinets like this one, pressurized with outside air to exclude process vapors.



ANALYSIS OF MATERIALS processed and produced in pilot operations at The Center is an important part of the work carried out by Lummus engineers. Here a laboratory technician determines the composition of a multiple-component gas, using a gas chromatography technique.

MORDEN



Specialists in Quality and Service

In hundreds of mills, in more than 20 countries, Morden machinery is depended upon for quality stock preparation.

There is a definite reason for this widespread confidence. Morden has specialized in stock preparation equipment ever since its founding in 1931. Morden's sole concern is the manufacture and improvement of equipment to simplify stock preparation. Morden maintains its own laboratory where Morden equipment is tested and adapted to solve specific mill problems. In addition, Morden's personnel is traveling continually to assist in the use of Morden equipment.

If your mill is interested in quality production with worth-while savings in power and labor, it will pay you to investigate the many advantages of Mordenizing your stock preparation. For further details refer to your Morden Catalog, or if you do not have one, send for your copy and ask us to visit you for an in-the-mill discussion of your requirements.

MORDEN MACHINES COMPANY

3420 S. W. MACADAM AVENUE • PORTLAND, OREGON

UNITED STATES REPRESENTATIVES — Midwest: Dan B. Chapman, Appleton, Wis.; Northeast: Orton Corporation, Fitchburg, Mass.; South: Brandon Sales, Greenville, S. C.

3 reasons

why it costs less to improve your mill operation with

SEPARAN 2610

Pulp and paper manufacturers are constantly reporting the amazing results accomplished with the aid of Separan® 2610. The substantial reduction in operational costs and material handling is remarkable.

A small amount of Separan 2610 . . .

1 *Increases Filler Retention*

—many mills report application of 0.1 to 1.0 pound Separan 2610 per ton of paper gives greatly improved retention, better freeness and better machine operation. In several mills the filler retention has been increased 5 to 10% on a year-around basis—and at a lower cost for the retention aid.

2 *Improves Save-All Operation*

—the use of 1-5 ppm Separan 2610 operates advantageously as a flocculant in flotation and in drum save-alls. Not only does it aid in saving on the diverse chemicals needed, but it also helps achieve a more efficient operation. For instance, with Separan 2610, optimum clarity of water may be obtained with decreased addition of alum. In other installations Separan 2610 afforded a substantial decrease in fortified rosin size—all at a considerable daily saving per unit.

3 *Improves Water Clarification and Waste Disposal*

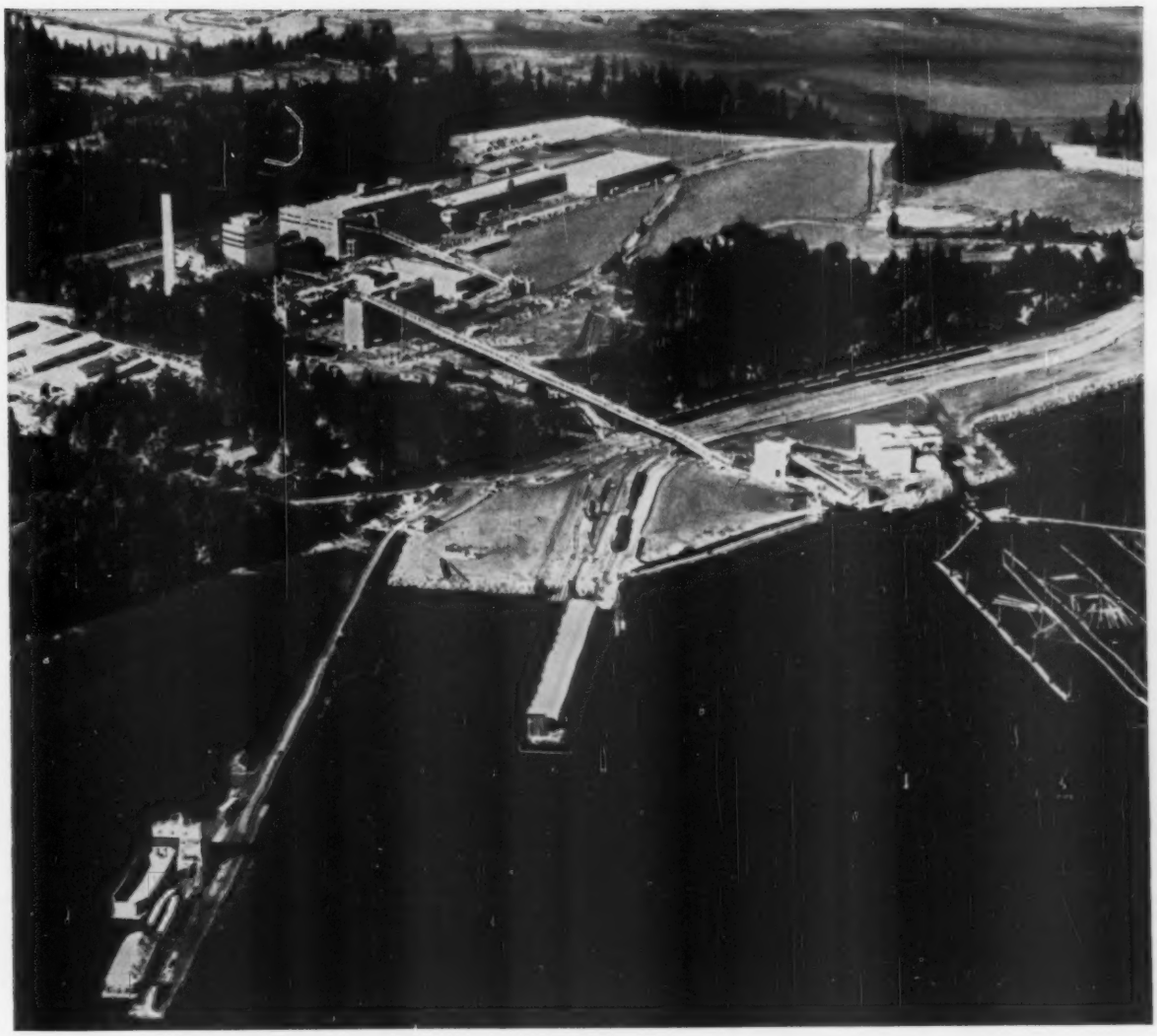
—the addition of 0.1—1.0 ppm Separan 2610 to incoming process water has given faster floc formation, improved settling rates, less wild-floc carry-over and better clarity of effluent.

The addition of 0.5 ppm Separan 2610 to the white water emanating from a tissue mill increased the capacity and decreased the effluent solids—all at a reduction in chemical costs. In fact, Separan 2610 is being used very successfully in almost every type of water treating unit.

• • •

You can learn more about the facts and figures on mill results by asking for our comprehensive report titled "Separan 2610 in the Pulp and Paper Industry". For your copy and/or a test sample of this superior flocculating agent, write THE DOW CHEMICAL COMPANY, Organic Chemicals Sales, Midland, Michigan.

YOU CAN DEPEND ON DOW



Now...a brand new, uniform pulp from British Columbia... CROFTON KRAFT

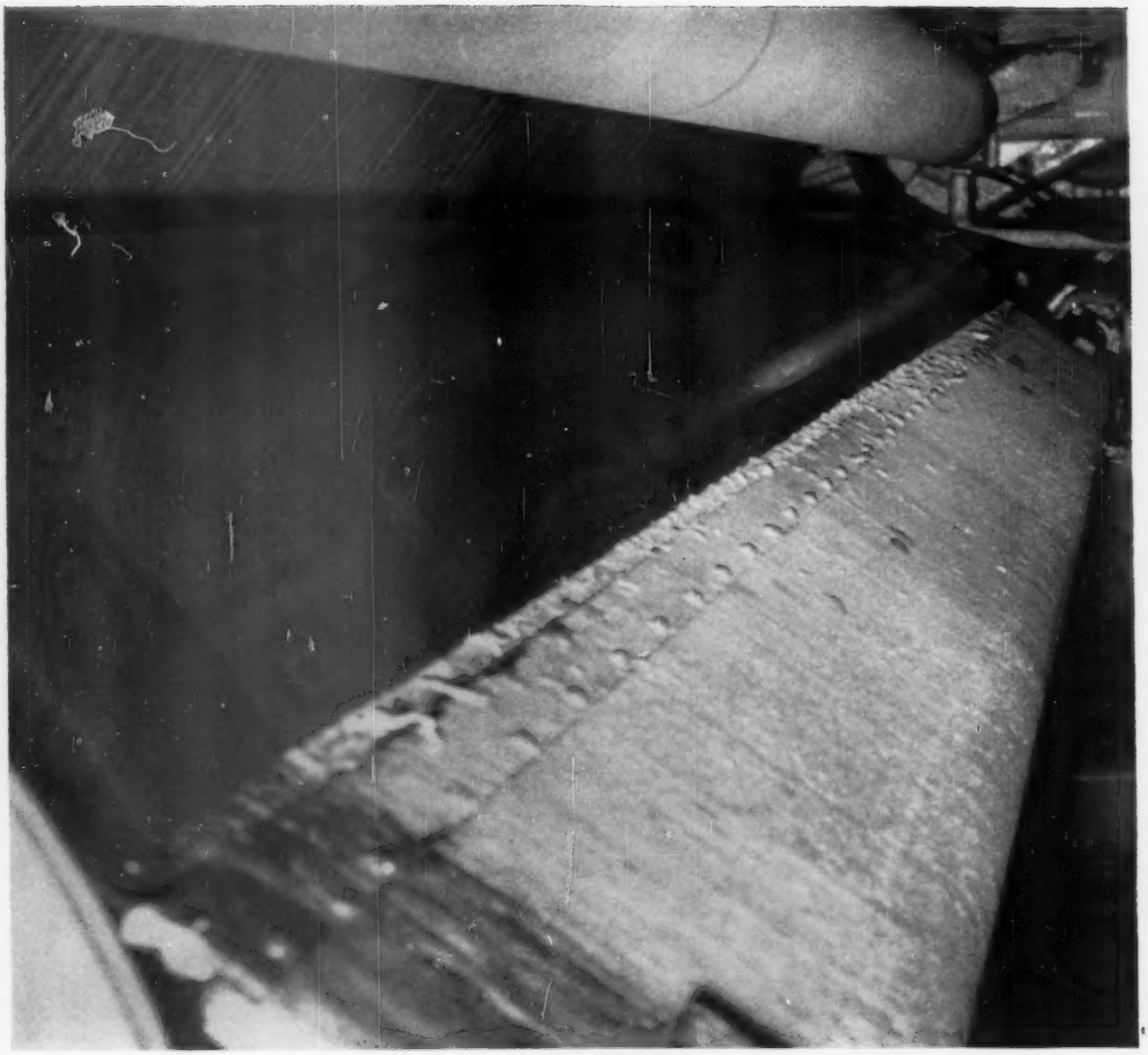
Here's a brand new, bleached Kraft market pulp of outstanding uniformity, quality and workability! And this new pulp will provide a brightness range making it suitable for the finest papers and board. Produced by the new British Columbia Forest Products mill at Crofton, British Columbia, this pulp is to be marketed throughout the world.

Production from this extremely modern pulp mill will be 425 tons per day. The six-step bleach plant will provide a uniform brightness of 88-90. The latest in process control and measuring instruments guarantee that the uniform quality of Crofton Kraft pulp will be maintained. A constant blend of fine Western pulp woods will be used to give outstanding workability.

The Crofton mill will go into production in December. Samples are available from Mead Pulp Sales, Inc., sole distributor of Crofton Kraft. Your Mead representative will be glad to give you full information about this new uniform pulp. Or write the Mead Pulp Sales office nearest you.

MEAD PULP SALES, INC.
Distributors of Wood Pulp
Bleached and Unbleached Chemical and Mechanical Wood Pulp
230 Park Avenue, New York 17 • 20 North Wacker Drive, Chicago 6 • 118 West First Street, Dayton 2
1504 Sherbrooke Street, West, Montreal, Canada

MEAD *pulp*



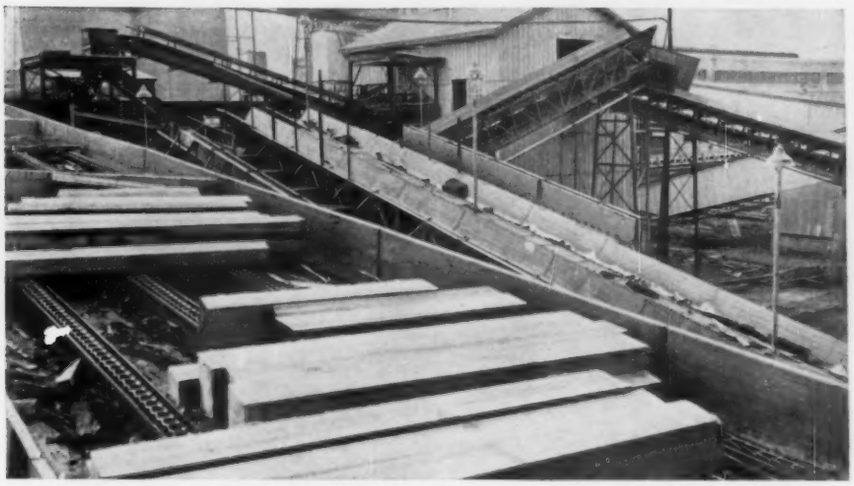
no wonder it's a Stowe-Woodward roll...

Every square inch . . . every surface fiber of the paper web shown must come in contact with this rubber covered roll. This roll, so critical in its use and manufacture, must be firm enough to extract the maximum amount of water from the web. It must be so gentle that it will not crush paper, or injure the felt; so smooth that it will impart its fine finish to the paper; and so carefully compounded chemically and from the standpoint of density and surface that it will press and release the sheet quickly and cleanly, without sticking or picking. No wonder the large majority of America's leading mills will settle for nothing less than the best rubber covered rolls from Stowe-Woodward, Inc.

Complete roll processing plants at:
NEWTON UPPER FALLS, MASS.
NEENAH, WISCONSIN
GRIFFIN, GEORGIA

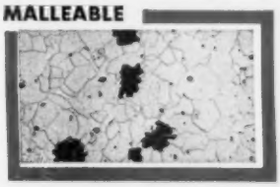
STOWE-WOODWARD, Inc.
Craftsmen in rubber
RUBBER ROLLS with a REPUTATION

Promal chain specified to resist heavy loads and abrasive wear



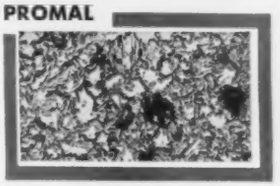
LONGER SERVICE, LOWER CONVEYING COSTS are achieved through the use of Link-Belt Promal Class H pintle chain. Longer-wearing Promal prevents distortion of links under severe impact.

MALLEABLE



MICROPHOTOS show difference between ordinary malleable iron and Promal. Left—white areas in malleable microphoto represent "free iron" . . . black shows soft nodules of carbon. Right—dark areas in Promal structure show stronger, stiffer reinforcing material which strengthens metal; resists distortion, wear.

PROMAL

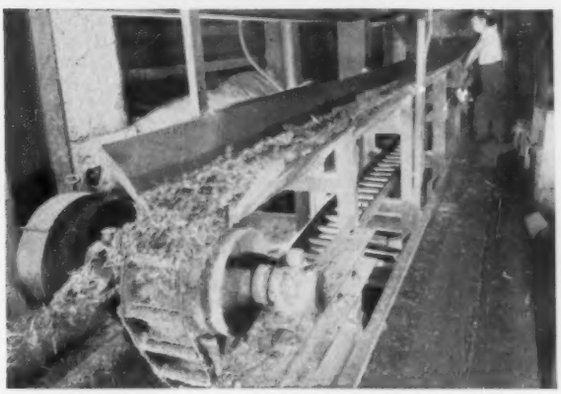


Specially heat-treated malleable iron provides extra wear resistance

Fewer conveyor shutdowns and minimized replacements are economies realized by users of Link-Belt Promal chain. Its greater strength absorbs continuous impact loads — and wear resistance supplies the durability to cope with severe abrasion.

Promal is more than a partially annealed or surface-hardened malleable iron. Developed by Link-Belt, this specially heat-treated malleable iron is actually transformed into a metal of radically different physical properties. Promal, because of uniform micro-structure throughout its whole section, provides greater ultimate strength, higher yield point, exceptional fatigue resistance and a remarkable capacity to withstand abrasive conditions.

For unusually abrasive or mild corrosive conditions, Promal chain can be furnished with "file-hard" surfaces. Copper bearing or special alloy content also available.



H-Class combination drag chain has extra wear surfaces

H-Class combination drag chain for refuse conveyors can be turned over to double service life. Sides and barrels of links are cast integral to resist distortion. Rounded side of barrel offers proper sprocket contact, while the other forms a vertical pushing surface. Accurately machined pitch holes in steel sidebars assure tight press fit. Chain is available in four sizes.

How, where to apply Promal in the pulp and paper industry

Choose Link-Belt Promal chains for highly abrasive conditions—for extra strength and wear resistance demanded by heavy loads or long, sliding conveyors. They last much longer . . . cost but a little more.

The wide range of Link-Belt chains available in Promal includes all types of cast and combination chains.

Special hardening available for highly abrasive conditions

Specially hardened Link-Belt chains and attachments have proved that there's no need to go to more costly cast alloy steel chains for highly abrasive service. See your Link-Belt representative or authorized distributor for specific details.

14,254

HEADQUARTERS for chains, sprockets and other Link-Belt conveying and mechanical power transmission products is your nearby Link-Belt factory branch store or authorized stock-carrying distributor.

LINK-BELT

CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

THE MILL THAT **PAYS** and **PAYS** and **PAYS**

No matter how well designed the dryer section of a paper machine, it becomes a more effective dryer with a Fulton fully-automatic Drainage System added. That is why paper machine builders recommend Fulton Dryer Drainage Systems, regardless of type, size, age or speed of the machine or the grade or grades it was designed to produce. About 1000 Fulton Dryer Drainage equipped machines confirm that statement.

The benefits, as all machine builders and legion of superintendents well know, include automatic control of drying operation; substantially higher drying speed; more uniform drying — far less broke.

On today's high speed machines Fulton fully-automatic systems are a "must" — no time to make manual adjustments. On other machines they are not a "must" but they are a "should" — return their cost over and over again.

Technical bulletin — tells all.

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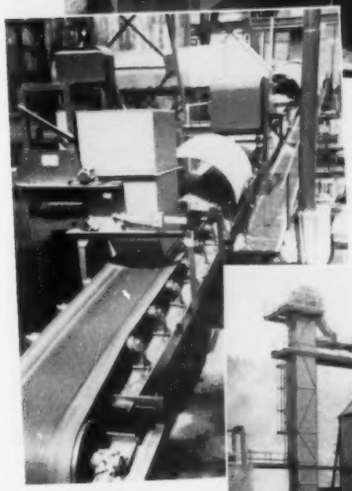
How to handle 4800 cu. ft. of LOGS and CHIPS per hr.



The use of WEBSTER Conveyors helped solve this problem in the 1957 addition to the Harriman, Tenn., plant of The Mead Corporation.

The above two photos show the receiving log conveyor and the conveyor from barking drum to chipper. They handle 30 units per hour at chain speed of 100 F.P.M. Each unit contains 160 cu. ft. and weighs about 6,000 lbs. Photos at left show the bucket elevator and belt conveyors for handling wood chips at capacity of 9,000 cu. ft. per hr.

WEBSTER Conveyors have proved their ruggedness and dependability in many prominent pulp and paper mills throughout North America. We would be pleased to work with your engineers in solving your log and chip handling problems. Write today—no obligation.

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PIONEER *chain saws*

Shown above is Model RA. Also available is Model JB for heavy-duty cutting.

7 REASONS why professionals

Dust- And Moisture-Proof Magneto is sealed against weather, dust and moisture. And—the fine metal mesh air cleaner filters out particles.

Field Strip In Seconds! The one-piece shroud is easily removable—giving you instant accessibility for on-the-job servicing.

Lubrication While In Operation The handle-mounted oil pumper lubricates Pioneer while it operates. Chain oiler has hydraulic pump.

Cool-Running Engine Self-cleaning rotary screen fan keeps the power-packed engine from heating up . . . helps keep Pioneer steadily at work.

. . . best way to get a *full* day's work done!

Woods-Engineered To Slash Your Maintenance Costs And Downtime!

Our competitors make some darn good chain saws—with direct drive, power and fast cutting speeds. So does Pioneer.

But . . . it isn't *how fast* you can cut, but *how much* you can cut that determines your production and profits. That's why Pioneer is a champion profit-maker. From its first bite into the wood in the morning until the day's end, Pioneer gives you more actual cutting time. There's far less downtime eating into your profits. In addition, your profit margin doesn't nosedive because maintenance costs are far lower. On-the-job servicing possesses engineered simplicity.

Then, isn't it common sense to check Pioneer before you buy any chain saw? Check it against other chain saws feature for feature. Check it for performance, power, durability and economy.

Write today for our free demonstration brochure to: Pioneer Saws Division, Outboard Marine Corporation, Waukegan, Ill., Dept. 1215.

PIONEER Chain Saws • A product of Outboard Marine Corporation

No Johnny-Come-Lately, But a *Woods-Tested* Veteran! The engineers responsible for every "first" in chain saws . . . including direct drive . . . developed the Pioneer Chain Saw and proved it in North America's big timber country. Then, the men who know two-cycle gasoline engines best . . . Outboard Marine Corporation . . . subjected it to every test they could devise before putting it on the market.

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Skillful, Low-Cost Servicing! Pioneer has engineered economical maintenance into its chain saws. In addition, factory-authorized servicing sends your Pioneer Chain Saw back to work in a hurry. Your Pioneer Dealer has thoroughly trained servicemen and genuine Pioneer parts to give you speedy reconditioning. You save time . . . you save costs . . . with Pioneer servicing.

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Right Chain For The Right Saw! Pioneer has engineered its own chains to assure you of vibration-free performance, reduced downtime and a one-third longer life. Now . . . no weaving, heel wear or link breakage can interrupt your working schedule. 4 types of Pioneer Chains are now available.

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Fast Starting In Coldest Weather With Pioneer's non-jamming recoil starter, snag-proof fuel line, and special carburetor.

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Maximum Power From Each Ounce Of Fuel With one-piece die-cast aluminum block with micro-honed steel wall insert, plus alloy piston.

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Knee-Deep in Faster Cutting

THE NEW, ALL NEW

HOMELITE

6 22

When you're knee-deep in cutting, speed means money. And the Homelite 6-22 means speed . . . like bucking a 20-inch log in just 18 seconds. And yet it has enough lugging power in its gear drive to fell trees up to 7 feet in diameter . . . without strain on saw or operator. Its light 22 pounds is packed with 6 full horsepower for day after day *dependable* performance. And the big, new fuel tank gives you up to 20 minutes extra cutting between refuelings.

The secret of the Homelite 6-22's speed is in the chrome plated cylinder and the revolutionary new intake valve. More power . . . less weight . . . faster cutting . . . the Homelite 6-22 will put you head and shoulders over the rest.

Choice of 14″ to 60″ straight blades and 14″ or 18″ plunge-cut bows. Let your Homelite dealer give you a free demonstration.

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SEE ALL THE FAMOUS HOMELITE LINE!

7-29 . . .
most powerful one-man chain saw you can own. 7 horsepower, 29 pounds. Powerful enough to bring down any tree in a stand. Fells trees up to 10 feet in diameter.

EZ-6 . . .
lightest, most powerful direct drive chain saw made. 6 horsepower, 19 pounds. Easy to carry, easy to handle. Cuts trees up to 5 feet in diameter, zips through 8″ oak in 4 seconds, 18″ pine in 14 seconds.

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rugged, gear drive chain saw gives you consistent, dependable performance in a wide range of cutting jobs. Has straight blades, plunge-cut bow, brush-cutter and clearing attachments. 4 horsepower, 20 pounds, cuts trees up to 5 feet in diameter.

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NEW FORDS GIVE

NEW FORD POWERMASTER

...MORE EASE OF HANDLING

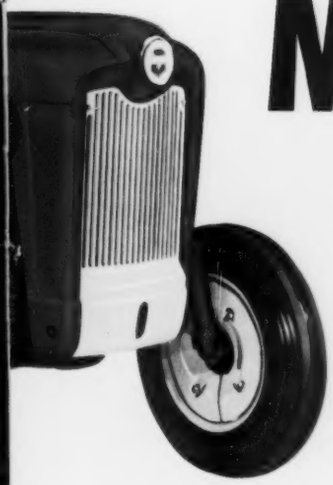
Work-easy power steering is available for all Ford Tractors to give fingertip steering control even in curbed areas, on soft ground or over rough terrain. Ford's power steering* gives 90% assist — leaves just enough manual control for the operator to retain "feel" of the wheel. No steering wheel kick-back, no lost motion . . . and the sharp reduction in operator fatigue shows up dramatically in the form of increased production!

*Standard on Row Crop Models. Optional on others.

EFFORTLESS, ONE-HAND STEERING		
TRACTOR LOAD	STEERING WHEEL TORQUE—FT.-LBS.	
	Power Off	Power On
Empty Loader	35 to 95	3 to 9
1000 lb. bucket load	100 lbs.-plus, according to terrain	5 to 9

YOU MORE POWER...

MORE SELECTION



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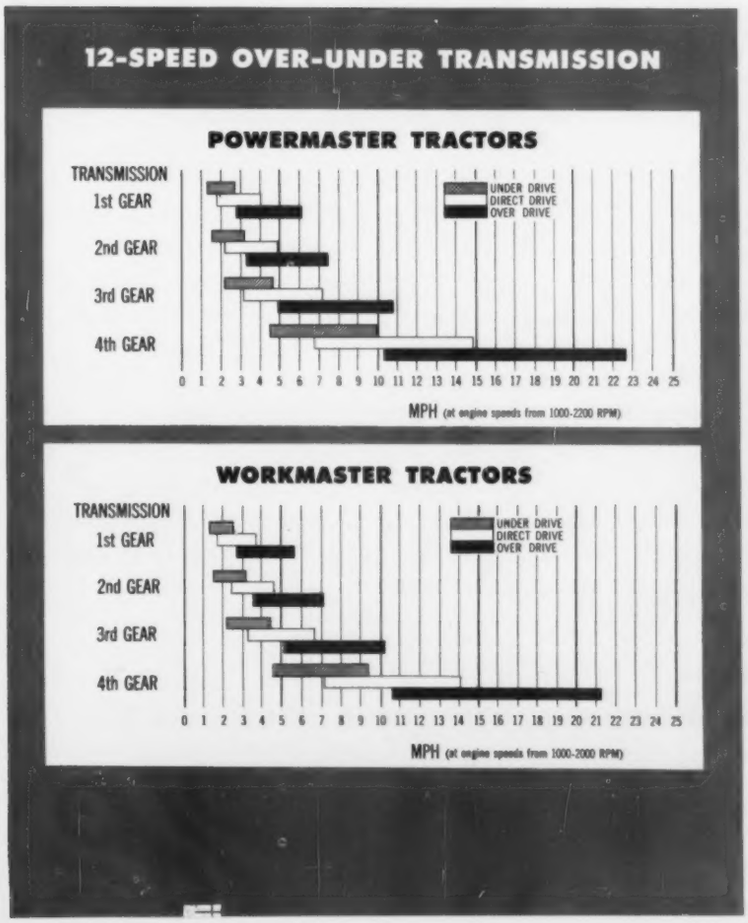
The most powerful Ford Tractors ever! There's a wide choice of new Ford All Purpose Tractors — in both the economical Workmaster series and the husky Powermaster series. Ford's new All Purpose Workmasters and Powermasters give you full range of equipment selection . . . from the Special Utility models, lowest cost work horsepower on the market, right on up through the fully equipped deluxe Model 861 Powermaster. All new Ford Tractors are available in gasoline or LP-Gas models. There's no waste investment for unneeded "frills" with the new Ford Tractors. Buy horsepower, weight and equipment to exactly fit *your* job! See your Ford Tractor and Equipment Dealer — or write Industrial Department, Tractor & Implement Division, Ford Motor Company, Birmingham, Michigan.


12-SPEED OVER-UNDER TRANSMISSION
POWERMASTER TRACTORS
TRANSMISSION
1st GEAR
2nd GEAR
3rd GEAR
4th GEAR
UNDER DRIVE
DIRECT DRIVE
OVER DRIVE
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
MPH (at engine speeds from 1000-2200 RPM)
WORKMASTER TRACTORS
TRANSMISSION
1st GEAR
2nd GEAR
3rd GEAR
4th GEAR
UNDER DRIVE
DIRECT DRIVE
OVER DRIVE
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
MPH (at engine speeds from 1000-2000 RPM)

. . . MORE MOBILITY

Ford's new Powermasters and Workmasters are available with choice of 4-speed or 5-speed transmissions. Four speed transmission can accommodate an "over-under" auxiliary transmission giving 12-speeds forward, 3 reverse and 3 PTO. They're your answer to any speed need from one-mile-per-hour creeping for finish grading and transplanting to more than 20 mph for fast transport.

Four-speed transmission models also accommodate a reversing transmission for work with a fork lift. All controls are simple, no high-priced "specialists" are needed to operate Ford Tractors and equipment. Any man on your job can keep the work moving on schedule!

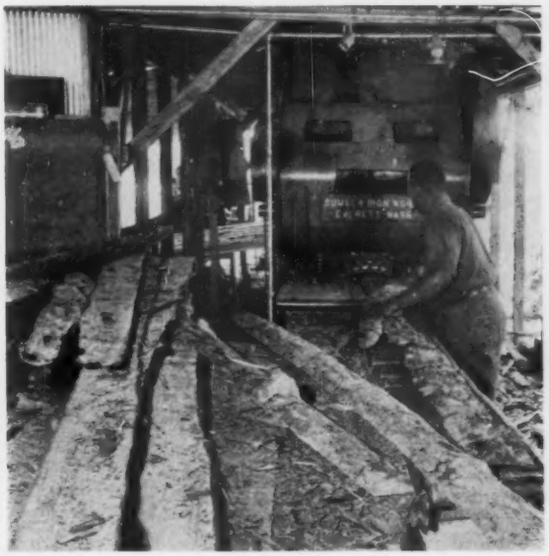
NOW POWER STEERING AND "LIVE" PTO

FORDSON MAJOR DIESEL

Power steering and "live" PTO are now being offered as factory options for the Fordson Major Diesel — already famous world over for fuel economy. Power steering adds still more mobility and ease of handling to the FMD, and with live PTO you can make still more use of the tractor's tremendous lugging power and versatile 6-speed transmission. Choose from four special utility and fully equipped models.

Amazing economy — Unbiased tests give dramatic proof of the FMD's amazing economy of operation. Still further savings are offered by FMD "Special Utility" models — work horsepower at a rock bottom price for industrial jobs where no hydraulic system is needed. And the same emphasis on money-saving is also found in Ford's gasoline and LP-Gas model tractors . . . low original investment, low operating cost, low maintenance cost. More of the economy that has always been traditional with Ford! See your Ford Tractor and Equipment Dealer.

YOU SEE MORE FORDS BECAUSE THEY SAVE MORE MONEY!



With advent of sawmill chip, South is getting "slab happy."

Monorail (left) carries unbarked sawmill slabs and edgings to Sumner Iron Works debarker (right) at Timber Products, Inc., chipyard in Anniston, Ala.

Chip Yard is Becoming Familiar Sight in Dixie. Converting sawmill slabs to chips . . .

. . . can be a profitable enterprise, as a lot of Southerners are finding out. Chip use in the South is zooming, from 125,000 cords in 1955 to over half a million last year, with more companies jumping on the chip wagon every day. Some experts predict pulp mills will use a million cords of chips from sawmills this year.

Small sawmills can hardly afford expensive barking and chipping equipment. But a centralized operation geared to take slabs from several different timber operations can make a go of it.

Two Viewpoints . . .

The chip yard can be a versatile thing from the point of view of approach. Two operations which differ considerably in methods of operation are at Anniston, Ala., 60 miles east of Birmingham, and at Manor, Ga., 26 miles from Waycross at the edge of lush Clinch County, probably the nation's leading pulpwood producing county.

Timber Products, Inc., at Anniston is currently shipping 100 cords of chips a week to Coosa River Newsprint Co., which might be called the foster father of the operation.

Timber Products got its start when Coosa River President Arthur Wakeman sent out a memo which read: "Have Jack look into chips." Jack was Jack Thurner, onetime asst. sulfate supt. at Coosa River and later woodyard supt.

Mr. Thurner did "look into chips" and as a result of that look has set up his own business.

He began installing equipment in February, shipped his first carload of chips in mid-March and was going full scale by the middle of April.

Area of Operation . . .

Timber Products purchases slabs from a radius of 25 miles around Anniston—mostly in Anniston itself and small surrounding communities like Talladega and Heflin. The company provides its lifeline sawmills with skids, then picks them up itself when they are loaded, paying $2 per 7,000 lbs. of slabs, f.o.b. at the sawmill. Thurner does all its own hauling.

"We like it better that way," he says, "we can control the delivery of stuff to our yard and keep a close tab on inventory, same way as a pulpwood yard works. When the skid is full the sawmill just stops loading. Then when we pick it up we leave another and they load up again. That way we always have a supply waiting for us."

Setting It Up . . .

"Salesmen will tell you you can put up an operation like this one for about $35,000," Mr. Thurner told PULP & PAPER. "But that doesn't count buildings, rails for your spur, power deposits, tools. Our tools alone cost us about $3,000. Then we had skids, our tractor-haulers, things like that. All told this operation cost right at $75,000."

Skids are unloaded by Detroit overhead crane on an Ingalls monorail. Slabs can be stored at one side or dropped directly on the Moore breakdown rig. This rig dumps slabs directly onto a platform leading to the barker. It is operated by two men. Barked slabs are conveyed on a single

strand Rex chain belt and dumped into the spout of the chipper. Rubber belt conveyor is used to carry screened chips to hopper cars for the 50 mile trip to Coosa River.

About the Barker . . .

"You hear complaints about slab debarkers," said Mr. Thurner. "This Sumner Iron Works Burnt River job of ours is doing okay for us. We're getting from 1 to 1½% bark in our chips and that isn't bad. Only one complaint from the mill so far. This barker is better for winter wood than summer stuff. We get some shivs in our summer wood—not objectionable but they're there. Service has been excellent. The Sumner Burnt River boys have flown in twice from Everett, Wash., to look it over. Can't complain about that."

The Georgia Operation . . .

For Fred Blacklidge, chipping was an almost natural step. Owner of two sawmills and a pulpwood yard at Manor, he set up his chipper at the pulpwood yard, installed a whole log debarker to service wood for his sawmills and he was in business. He ships 125 cords of chips by truck and 600 cords of pulpwood a week to St. Mary's Kraft, about 70 miles away.

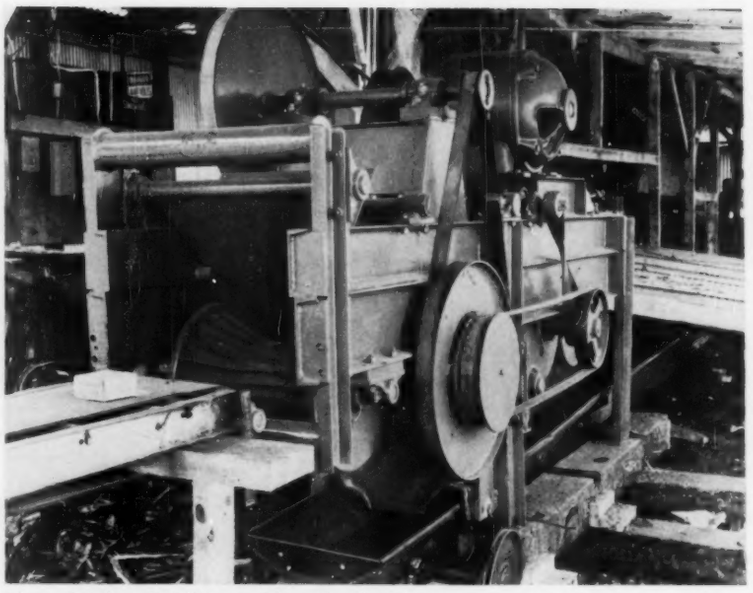
Total investment, including a Taylor Pulpwood Dream, 53 in. Sumner chipper, log debarker, chip trailer and truck and a Fairchild conveyor, was $60,000.

"I hope to be clear in about three years," he told PULP & PAPER. "That includes depreciation, of course. It's certainly a worthwhile investment. I figure chips are here to stay and getting bigger.

"It seems to me, any man with a fair size sawmill and a little capital should be thinking about getting into this line. There are many angles to it. If the lumber market goes sour you can chip poorer grades for awhile and at least come out a little ahead. Then, too, I think you'll be seeing more chip yards like mine springing up. Man doesn't necessarily have to go all the way then. He can get himself a small log debarker and sell barked slabs to a small chipping operation. It's a good thing—for him and the industry."

Right now, Mr. Blacklidge is buying slabs from himself on a contract basis. "Everything is by contract . . . that way I know where every cent is going and every penny I'm making."

But he added that if other smaller sawmills in his area had barked slabs to sell, he might well be in the market for them. ●



New Barker Will Boost Production

New Soderhamn slab debarker for Timber Products is expected to boost production from present two cords an hour to three cords. It will be connected in parallel with present barker.

Loading Pulpwood is Major Job . . . but Chipping is Important also

At Manor, Ga., yard, Michigan crane performs primary job of loading pulpwood (left). Secondary, but important, chipping operation is seen at right. Clean slabs peeled by whole-log debarker prior to sawing travel up Fairchild conveyor and drop into spout of 53 in. Sumner chipper. Laborer inspects chips (a screen is on order), then they are dumped into homemade chip truck for journey to St. Marys Kraft.

Preview of a trend:

Scale by weight?...

Since the very shape of sawmill slabs defies measurement by volume, both Timber Products Inc. of Anniston, Ala., and the Blacklidge operations in Manor, Ga., scale by weight . . . but in different ways as the pictures show.

Both are using scales by Martin-Decker, Long Beach, Calif., capacity: 25,000 pounds.

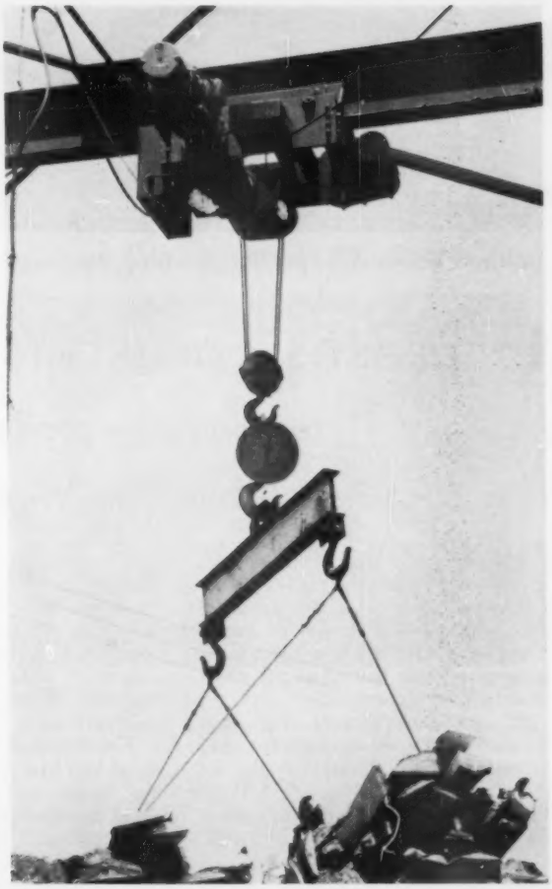
Fred Blacklidge has the scale mounted on a Taylor Pulpwood Dream lift truck which is also used for relocating pulpwood. The scale operator, usually Mr. Blacklidge, removes all slabs from sawmill trucks as they arrive and weighs them before storing them at the foot of the chipper conveyor. An accurate record of slab weight is kept this way.

At Timber Products, slabs also are weighed as they are unloaded.

Point: Weight scales are not only more accurate, but they preclude use of a scaler, an economic check in their favor.

How Georgia Firm Weighs Slabs . . .

Weighing device is at top of lift truck; scale is in cab, directly in front of steering wheel, easily read by operator.



How Alabama Firm Weighs Slabs . . .

Scale is on hoist between monorail and load, easily read from the ground.

Closeup of truck scale used in Georgia.

Isolated Barker-Chipper Plant—Idea Borrowed from Sweden . . .

Increases Forest Yield and Values

Three-man crew produces 100 units of clean chips in 8 hours near Grays River, Wash. First operation of kind in Far West

. . . This plant, located on Deep River, a tidewater tributary of the lower Columbia River near the town of Grays River, is the first on Pacific Coast built specifically to operate on logging residuals that could not otherwise be used economically.

It provides "another big step forward in forest management and increased wood utilization in the region," according to E. P. Stamm, Crown Zellerbach Corp. vice president in charge of Northwest timber operations. Chips are barged 60 miles to the St. Helens, Ore., pulp and paper mill.

C. L. Morey, heading chip procurement program for CZ's Columbia valley mills, anticipates increased yields from tributary forest lands in Pacific and Wahkiakum counties of approximately 11% as result of operating this plant. The crop increase is extended to participating woodlot owners as well as to company-owned forests.

Patterned After Swedish Operation

The plant, a $275,000 investment, is a combination debarking-chipping setup patterned along the lines of Swedish operations but adapted to Pacific Coast conditions and equipped with processing components of American manufacture.

Logs ranging in diameter from 3½-in. minimum to 18½-in. maximum arrive at the plant site by truck-trailer. Normally they are parbuckled directly from the tranport units onto a live mill deck by an overhead, 2-line winch. Logs arriving when this deck is filled, or when plant is down, are deck stored at the plant site and subsequently transported to the mill deck as needed. A D4 Caterpillar tractor equipped with Traxcavator is used for this at-plant log handling and transport work.

The live chain-topped mill deck delivers logs to a chain conveyor serving the barker—an automatic, ring-type 26-in. mechanical Cambio unit manufactured by Soderhamn Machine. This has variable-speed feed rate of 100 lfpm maximum. As a log moves through the revolving ring it is engaged by 5 spiral shape barking tools which remove the bark with a cambium-shear action.

Debarked logs emerge from this unit to an in-line conveyor which delivers them directly into a horizontal-feed 84-in. Hansel 4-knife blower-type chipper which converts logs up to 24-ft. long into chips at top speed of 109 lfpm. The chipper is direct driven by a 514 rpm 350 hp 440-volt Electric Machinery motor.

Load Chips on Barge . . .

Fan blades mounted on back side of the chipper disc blow the chips directly to a cyclone where they flow by gravity onto an inclined conveyor. This sloped transport, equipped with 30-in. Goodrich belt, Link-Belt idler and troughing rolls, terminates over the river where the chips discharge from the belt to a sheet metal hopper terminating in a pipe discharging directly into a barge.

Operations throughout the plant are controlled by one man stationed at the Soderhamn control panel adjacent to the barker. From this point he has unobstructed vision of mill deck, overhead winch, log flipper, feed chains, barker and chipper. The receiving barge is plainly visible from the mill proper, hence loading can readily be observed with view to checking operations and moving the barge as portions become loaded. Barges are held in place by wire ropes reeled on Beebe hand winches. With these units the barge being loaded can be readily and appropriately positioned for receiving chips discharging from the loading spout.

It takes slightly over 16 production hours to load a barge carrying around 220 units of chips—representing over 110,000 feet (log scale) of salvage wood (equivalent to about 220 cords). Loading necessitates repositioning the receiving barge 7 or 8 times. This consists of easing off one winch line and tightening another when the area beneath the loading spout becomes filled.

Filled barges are removed from the loading pier by a river tug for delivery directly to Crown's mill at St. Helens, Ore., some 60 miles up the Columbia from the chipping plant.

The Deep River mill, which will process around 10 million feet of salvage wood annually (20,000 cords) at its present production rate, provides year-around work for about 50 men. The unit obtains logs from the company's Cathlamet and Pacific tree

Parbuckling small logs . . .

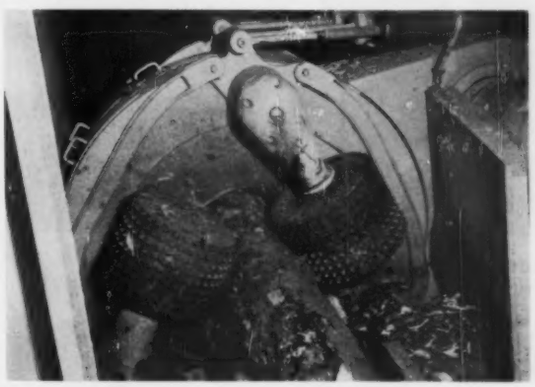
. . . from truck-trailer (Mack, Pierce) onto live mill deck with overhead 2-drum winch assembly.

Cambio 5-tool barker removes bark . . .

. . . from hemlock log. One operator controls functions of complete plant from this station.

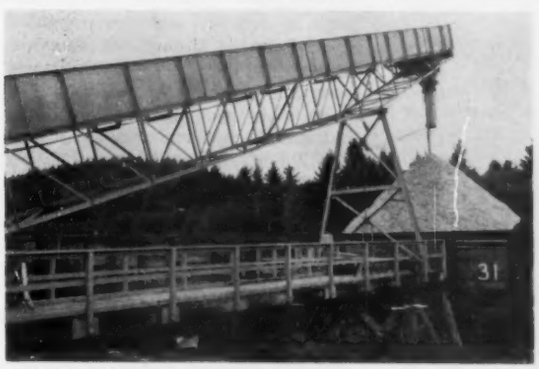
Logs become chips . . .

. . . in 84-in. 4-knife Hansel blower-type chipper delivering chips to cyclone through discharge pipe at top.



Close-up . . .

. . . of ring-type Soderhamn Cambio barker. Emerging debarked log loads directly into chipper at left.



Stream of pulp chips discharges . . .

. . . via Link-Belt-Goodrich rubber belt conveyor from conveyor right on to river barge.

Tug hauls barge to St. Helens mill . . .

. . . containing 225 units of chips produced from 110,000 bd. ft. of small logs on 60-mile trip.

farms as well as from independent loggers and woodlot owners.

The plant, designed by Crown's Central Engineering department with emphasis on simplicity and efficient operation, was erected by Hoffman Construction Co. Sumner Iron Works provided prime transmission equipment.

A belt conveyor installed beneath the operating floor collects bark and other incidental debris from the mill deck and debarker. It discharges to a chain conveyor which transports the material away from the building. Periodically the resultant accumulated pile is removed by bulldozer and spread over low plant site areas as fill material.

Personnel manning the entire plant consist of the tractor operator, a millwright, and one man who controls production processes from the mill from his master control station. A Hanchett grinder is used to sharpen the chipper knives.

Except for occasional checking, no scaling of logs is required at the plant. This is possible because the barker-chipper unit supplements the company's regular logging and log-acquisition program.

END

Loading Truck for Hinton Mill . . .
Pettibone Mulliken Cary-Lift does job near new Hinton mill . . .

40 Cords An Acre! New Facts From Alberta

A visit to woodlands operations of North Western Pulp & Power Ltd., on the eastern slopes of the Rockies by a PULP & PAPER editor recently brought forth some interesting new information:

1. Contract loggers have cut as much as 40 cords in one acre.

Of course, this has happened before on virgin stands—but it is a remarkably high yield. This is in virgin white spruce largely, in the vicinity of the Hinton, Alta., mill. Foresters pointed out some trees up to 265 years old. Operators say average yield will probably be 30 to 40 cords per acre.

2. An Amazingly versatile machine which will both cut and delimb mature trees was given its initial experimental test near Hinton.

Inventor of this machine (other industries have been working on the same idea) is John Pope of High River, Northwest Territories, a salvage expert who makes a living salvaging tractors and other heavy machines sunk in muskeg, lakes or rivers of the Far North country.

St. Regis, operators of North Western, think so highly of the machine they are giving it further testing at their subsidiary, Rhinelander logging operation. This machine is a crawler tractor equipped with a series of devices. It starts at the edge of a clear-cut area, selects a tree, cuts it off, transports it upright to a landing, lowers it, removes the limbs, saws it into 100-in. lengths and stacks the pieces in a pile.

3. Biggest continuous forest inventory.

It is now believed the continuous forest inventory of the Hinton company's two million acre Crown land leasehold is the biggest ever undertaken in logging history. It is now well advanced. (Details, page 96, Sept. 1957 issue.)

4. At present, wood is being delivered to the Hinton mill at a cost under $20 per cord.

Trucks deliver in winter months (Dec. 1 to April 1) when roads are firm and frozen. Logging operations are from 12 miles to 50 miles distant from the mill. Fixed stumpage prices to the Alberta government are 55 cents a cord for lodgepole pine and $1.50 per cord for white spruce.

Homelite, McCulloch and I.E.L. power saws are used. Operators are using International TD 18 and Caterpillar D8 tractors. These are primarily for bulldozing roads and strip roads. The company also has in use Skagit and Timberland yarders. There were about 134,000 cords stacked in the mill yard at Hinton last Fall. The trucks used for hauling are White, International, Autocar and GMC.

5. One hundred foot lengths are being delivered to the mill.

The Hinton staff says 100-in. wood barks better than 4-ft. The mill has the largest type drum barkers in the world, three 67½-ft. Fibre Making Processes machines.

Dempsey ..... and an I.E.L. Saw

Both at Hinton, Alberta

GUY DEMPSEY is new general woodlands supt., North Western Pulp & Power Ltd. He was with Marathon Paper Mills of Canada woodlands dept. for 12 years. He now serves under Adrien Provencher, woodlands mgr. at Hinton.

College of Forestry Celebrates 50th Anniversary

The University of Washington College of Forestry celebrated its 50th anniversary Nov. 8-9.

It now has a faculty of 12 and a student body of 250 undergraduates and 20 graduate students. Over 1,500 foresters have graduated from the college in Seattle, and are practicing their profession throughout the world, hundreds of them with pulp and paper companies.

Parts of the college are the Charles Lathrop Pack Demonstration Forest of 2300 acres, Lee Memorial Forest of 160 acres, and the University of Washington Arboretum of 267 acres.

Anniversary celebration guests were welcomed by Dr. Henry Schmitz, president of the university and 1915 graduate of the forestry college. Frederick K. Weyerhaeuser, president of Weyerhaeuser Timber Co., spoke on "Forestry 50 Years From Today."

SE Foresters Plan Annual Meet For January In Panama City

Latest developments in forest fire prevention and the economy of intensive land management will be studied at the Southeastern section of Society of American Foresters annual meeting, Jan. 30-31 at the Dixie Sherman Hotel, Panama City, Fla. The first day will be devoted to business with panels scheduled for the entire second day.

How to Make Logging Safer

"We are Just Scratching the Surface . . ."

Four Ways to Carry on Training . . .

The author—H. J. Deabay, of Sheridan, Me.

By H. J. DEABAY*

Safety Director, Woodlands Dept., Great Northern Paper Co.

● When a speaker says, "There is no reason why the accident frequency of the logging industry is higher than that of other industries, or higher than the national average of all industry," then you are listening to someone who has very little knowledge of the work involved, or the existing hazards we can do nothing about.

I heard this statement made not too long ago from one of the leaders of a large company that cuts thousands of cords of pulpwood each year and the only attention woodlands safety gets is from some mill personnel man who is trying to do something with a little spare time he may have now and then.

I do not mean to be pessimistic and fully realize we are only scratching the surface in logging safety. Our average frequency is twice or three times greater than it should be and we can say as much for the severity.

It will not get any better until management realizes it needs someone in woods operations whose primary duty is accident prevention. Until we are much more advanced in this field than we are today, it does not require too many men working for a full time safety man to be kept busy if he is the right man.

Why Accident Rate is High . . .

Here's why anyone stating that our logging frequency should be down to that of other industry, does not know much about the work involved:

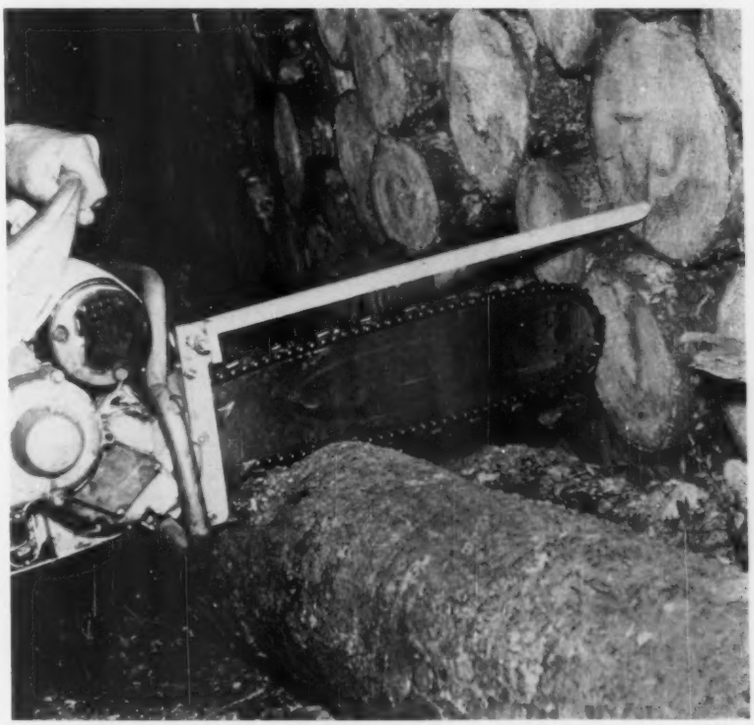
1. In most areas logging is seasonal and the worker has a lot of lost time each year. Most of the work is done on a piece-work basis and the men tend to work at excessive speed, earning as much as possible while the job lasts.

2. Every cutter works with very sharp tools, i.e., axe, chain-saw, cant-dog, bark spud, and with either a horse or tractor. The new direct drive chain saw turns very fast. It is used on snow and ice, in brush, steep terrain, all kinds of conditions, and in the hands of all types of workers regardless of their degree of intelligence. There isn't any such thing as choosing the right man for the job during the cutting season.

3. There are all types of uneven terrain, rocks, roots, mud, snow and ice, and other hazards that cannot be taken care of with "non skid paint" or "speedy-dry absorbent." These hazards exist, and have to be accepted as part of the occupation.

4. In most Maine forests (and this is true of sections of Canada) there are standing a lot of dead hardwood trees and stubs that are a menace overhead. Some of these are so rotten that the least jar will cause them to fall. The workers fall many of them around yards where they pile wood and along twitch trails, but it would be costly to try and saw them all down and would be dangerous work.

5. Our large labor turnover has an adverse effect on our frequency. There has been a lot of discussion on



New Safety Guard for Chain Saw . . .

. . . developed by Great Northern Paper Co. If successful and accepted by workers, it probably will be put on market by some chain saw manufacturer. The guard is made of aluminum, weighs 14 oz., is 22 in. long (protrudes about 3 in. beyond bar and chain). Would have to vary in length with different length blades. It is mounted 1⅛ in. above chain and swings up on a spring. It has a substantial stop, which will stand a lot of pressure before hitting blade. It is fastened to saw by same bolts and mount as spike bar.

*Talk given at 45th National Safety Congress in Chicago Oct. 22 before the Wood Products Section.

how it could be stabilized. There is no doubt a lot that could be and should be done. However we can never expect it to be as stable as our mills and factories where people live and own homes. I believe that not enough is being done for our loggers. I can think of several incentives that would help stabilize our labor and also help keep better caliber men. For example:

a. Bonuses; b. Contracts drawn up with employes guaranteeing them a certain number of months work during the year; c. Sick benefits, insurance and retirement benefits.

The Human Side . . .

Two fundamental reasons for the expenditure of time, thought, and money on ways and means of reducing the frequency and severity of accidents in the woods are first, humanitarian, and second, economic. No management of any business, whether it be woods or factory, can view this subject with complacency.

As for the human side of safety, when a man signs up on our woods operations, can anyone who is responsible for the success of that operation take the attitude that the man's safe working habits are entirely his own responsibility? I think not. Our woodsmen are not bohunks. They are individuals, who are skilled or are gaining skills. They deserve sincere consideration and thought as to their safety.

The Economic Side . . .

We have all reached the stage where supervisors recognize accidents are costly. It is simple to figure the direct cost of compensation insurance, but I wonder how many of our supervisors in the logging field are aware of the indirect cost of damaged machinery, forest fires, production loss by men helping injured get to camp, personnel and transportation involved getting the injured to a doctor or hospital, rental of idle horses and equipment, not to mention the loss of production of the injured and the time it takes to replace him.

We would find a four-to-one ratio of indirect cost over direct cost may not be far wrong. In discussing training of loggers, I want to break this down into four categories:

1. Indoctrination. 2. Formal training. 3. On the job training. 4. Supervisory training.

1. Indoctrination

This is one of the most important steps of any training. A new employe is more receptive to instructions before going to work. All the instructions possible should be given at this time. A successful safety program is largely dependent on the attitude of management, supervisors of all levels, and that of the worker. Proper attitude toward safety must start at the top and work down.

So, in our indoctrination program, let's tell new employes what we expect of them and what they can expect of us. They should be briefed on company rules and policies; who they can go to for help with problems; where the first aid room is and to be sure and get treatment for minor injuries. Men should be told about the safety clothing and equipment available for their use, and of their responsibility for the safety of their fellow employes.

Let's make them feel that we are interested in their welfare and if time permits, find out something of their past and their families. This is not always possible in our woods camps where turnover is sometimes great, but we should do as much as we can. The first impression a new employe gets of his boss, and the camp he is to live in, plays an important part in how long he will stay at that camp.

Good Safety Practices Illustrated . . .

This logger is doing everything right that should be done by anyone operating a chain saw. His clothes are worn tucked in or buttoned. Safety shoes protect his feet. Hard hat protects his head and body.

2. Formal Training

This is to be conducted by specially trained instructors or foremen. There are many stages of training; there may be men who know nothing about the work, others who have some experience, while some may be semi-skilled. These men should be divided into three different groups so the ones with less experience would not hinder progress of the others.

Until we can do something to stabilize our labor resource, I do not feel this type of training is feasible. Some safety experts maintain that a good training program will curb turn-over almost completely. I do not question that it will help but would want to see two or three cases proven before setting up a program that depended on it. I am speaking now of our condition in the Northeast with most of our labor coming from Canada and being many miles from home in most cases. These men are brought in from Canada on a bond and are supposed to be skilled, however this does not always hold true. Very few could be classified as unskilled, but a large majority are only semi-skilled.

The turnover is greater during the

season when we concentrate on peeled wood. They can make as much money peeling as cutting rough but do not like the work. We can appreciate this, seeing the gummed condition of their clothing. However, they often go to another camp doing the same work.

We may feel some men need training while in their own minds they are experts. If asked to attend a training session and be paid on an hourly basis, they would be apt to pack up and go elsewhere.

Our company made two attempts to train youths. During May 1952, we went to all high schools in surrounding areas and talked to boys who would be 18 when school ended. We explained our program, telling them they would be paid on an hourly basis until they could produce enough to make more. We showed them earnings of some skilled woodsmen, and gave them estimates of how much they might be earning. We advertised in the local paper. Not many boys showed interest, but some said they might try it. On opening day we had one recruit from the southern part of the state.

Our second attempt was in 1955, as a result of letters received from college boys who expressed their desire to cut pulpwood during summer to get in shape for football. Eleven boys showed up. The company started its program with a capable instructor. They were healthy, rugged fellows with no experience. They started out with the basic fundamentals of what tools to use and how to maintain them. They were enthusiastic. With exception of a minor scratch, none of the boys were injured. This was quite an accomplishment because after three weeks, the boys were producing in crews of two or three, on their own more or less. During their stay of five or six weeks they were not able to produce enough to make the minimum wage figured on piece work. Some could have made it if they had worked harder.

We feel this was a fair experiment of our American youth of today. Before our present child labor laws were in force, boys 15 or 16 years of age went to work in the woods with their fathers and learned how to work and take care of themselves. By the time they were 18, they could earn a fair week's salary and had learned to take the hardship as a matter of course.

3. On the Job Training

This is the type of training our company has concentrated on for the past six or seven years. Most of our employes are skilled to some degree. Their skill varies due mostly to age and experience. We do more than just "on the job" training, however, because we make extensive use of visual aids. We show all the safety movies we can acquire, show slides which were taken to bring out proper and improved working habits. We have camp meetings to discuss the hazards during the current season, brief them on our accident analysis and discuss means of eliminating recurrence by better working practices.

Our foremen see their men at least twice a week and usually more often. Any unsafe practices noted are corrected, and any possible unsafe condition eliminated. Here are common unsafe practices:

1. Bucking on cluttered yards (too many logs yarded in).
2. Bucking too close to pile.
3. Starting chain saw from knee.
4. Failure to clear around tree to be felled.
5. Walking with chain saw with motor running.
6. Men working too close together.
7. Occasionally a man not wearing his hard hat.

Common unsafe conditions are: 1. Working on yard with a dry stub overhanging. 2. Poorly maintained tools.

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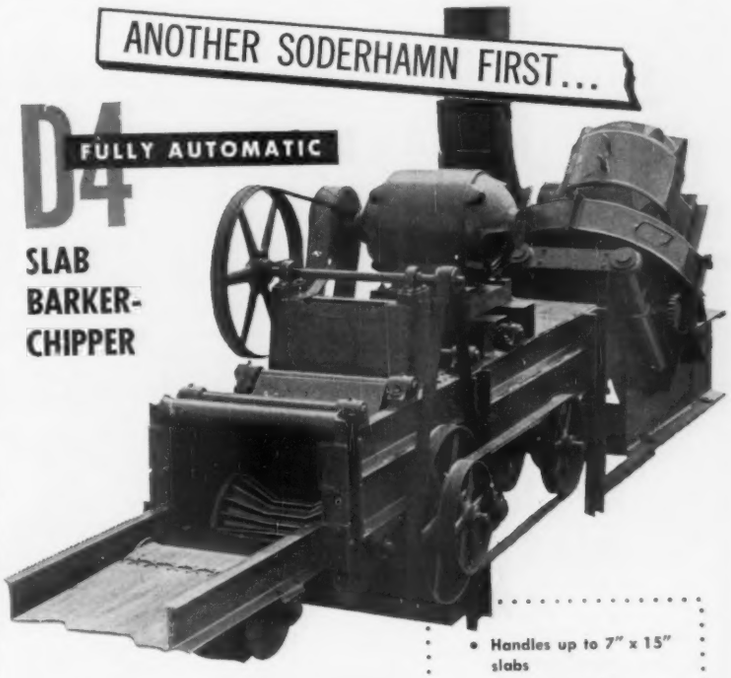

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3. Working on icy truck bodies.

If an employe needs more attention than the foreman can give him, he can go to our experimental camp where we have more supervision per capita and get the needed help and supervision.

When making rounds in the woods, the foreman makes it part of his routine to talk with each crew 3 to 5 minutes about hazards or an accident that happened at another camp. Safety supervisors visit the men as much as they can and work with the foremen to assist and encourage them to speak to the men. One of the most important and never ending tasks is that of keeping employes safety conscious.

It is a foreman's obligation to try and inculcate a sense of individual responsibility in each employe. If an accident occurs, foremen and clerks are trained in first aid and can make a man as comfortable as possible until a doctor is reached.

4. Supervisory Training

Supervisors are not necessarily all good instructors. If we expect them to do "on the job" training, we find that having them attend an instructor training course will be helpful. Most insurance companies offer this service.

Good instructions are as important as good tools. A man should be told why he should do it this way rather than that. He should be shown in an easy manner, not hurrying, and observed while he is doing it after having been shown. The supervisor should return frequently at first to make sure the job is being done as taught.

An annual refresher course is about as important as the initial one. Some supervisors have done a much better job of instructing after they had taken the course a second or third time. There are steps and techniques that are a must for effective instruction.

Indirect Cost of Accidents 4 Times Direct Costs

The indirect costs of accidents add up to four times as much as the direct costs.

A. R. Mobbs, manager of industrial relations, Abitibi Power & Paper Co., Ltd., brought this message to the National Safety Congress. He pinch-hit for his president, D. W. Ambridge, scheduled featured speaker at a Wood Products section session.

Abitibi, a leader in safety work in Canada, has found safety improvement adds up to lower costs.

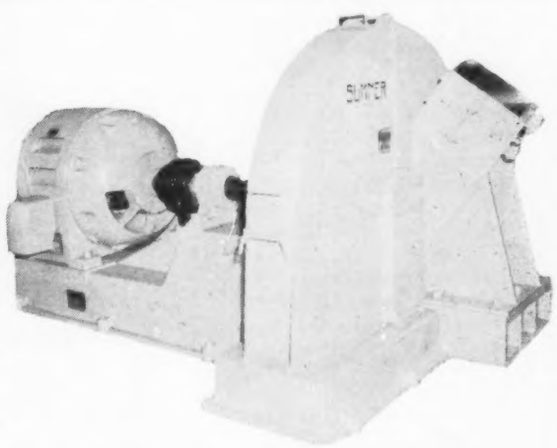
Another speaker before the Wood Products section, Glenn F. Griffin, director of industrial training for the National Safety Council, emphasized that workers "can have an attitude for accidents as well as an attitude for safety." His pitch was that "the attitude" is the most important factor in safety work.

Protecting Fire Protectors

John F. Shanklin, staff asst., U. S. Dept. of the Interior, Washington, D. C., emphasized these features in safety training of fire protection foresters at the Safety Congress in Chicago:

1. All employes should be encouraged to take first aid training.
2. No one works in isolation—always two or more.
3. Hard hats are a must.
4. All vehicles should have first aid packs and instructions.

SUMNER
16 KNIFE
WASTEWOOD
CHIPPER



★ Designed for high yield recovery of uniform chips from slabs, edgings and heavier sections of mill wood refuse.

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5. Communication is maintained with mobile units.

6. Safety practices are demanded.

Movies on Woods Safety

Movies illustrating the importance of safety in the woods shown at Congress sessions by Abitibi Power & Paper Co., Ltd., Toronto, Ont., and by Homelite Corp., 7707 Riverdale Ave., Port Chester, N. Y., manufacturer of power saws, were features of the sessions for pulpwood workers. These movies are available from the sponsoring companies for showings.

Factors in Training

Orientation, repetition and observation are principal factors in training for safety. These are points that Prof. J. Kenneth Pearce, professor of logging engineering, College of Forestry, University of Washington, Seattle, emphasizes in a specific course in accident prevention for seniors in the college.

Robert M. Gilmore of Rayonier Inc., Hoquiam, Wash., past president of the Wood Products section of the National Safety Council, delivered Prof. Pearce's paper at a joint session of the Pulp and Paper and Wood Products section.

Hardwood Utilization: A Southern Must . . .

● The so-called "lowly hardwood," a subject which has been discussed perhaps more frequently than any other in the woodlands this year, was scrutinized at the Southern and Southeastern Superintendents meeting in Jacksonville in October by J. D. Dailey, gen. supt. at Riegel-Carolina and new chairman of the Southeastern division.

Substituting for asst. woodlands mgr. R. R. Richardson, Mr. Dailey said: "The hardwood may well hold the key for future expansion in our industry."

Some ways in which more wood reserves can be developed: Increased production on pine lands; increased utilization of sawmill chips; increased use of wood previously overlooked. The hardwood falls into the last category. At present there are 68 billion ft. of growing hardwood in the South —its growth exceeds drain by about 62%. The Stanford Research Institute, says Mr. Dailey, predicts a 345% increase in use of hardwoods by 1975, from 1.2 million cords in 1946 to 8 million cords in 1975. By 1956 the South was already four years ahead of this schedule and with the rapid interest in semi-chemical pulping, plus recent developments in mixing pine and hardwood fibers, it will probably continue to increase at an even more rapid clip.

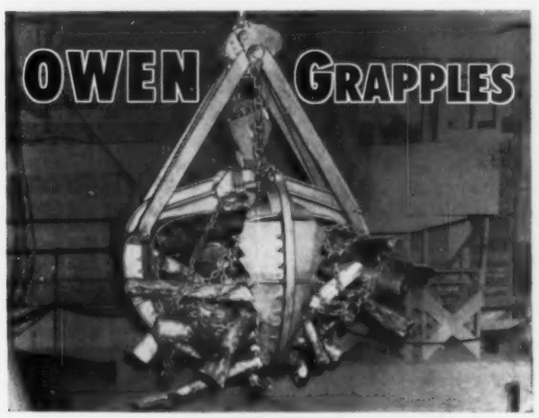
Greater Yield For Less Cost . . .

Hardwoods have many attractions, Mr. Dailey pointed out. One is cost, $1.00 to $1.50 lower per cord than pine. Another is yield, which is greater from hardwood than from pine. With costs rising (increased cost of land, rural population moving away from the South), one way to keep the cost low will be to accelerate the use of hardwoods. Here's what it can mean to the South:

1. Forest managers can achieve complete forest management, grow wood best suited for the land, achieve more economic operation.

2. Using hardwoods, Southern managers will be able to realize maximum use of machinery, offset the loss of labor force.

3. Small landowners, who now provide 75% of the industry's needs, are now practicing the poorest kind of land management. Incentive for better management can be provided only if the industry provides a market for the farmer's hardwood.



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Midwest

Memo from DGC

F. TALMAGE (TAL) EDMAN has joined the Midwest sales and service staff of Weyerhaeuser's Pulp Division, announces KEVE LARSON, sales manager of the division. Mr. Edman will work out of the Chicago office which is headed by SPENCER SMITH. Mr. Edman previously was with International Paper Co., serving in paper and board sales in Chicago and prior to that in the Corinth, N.Y., mill in sales service and various other positions in the mill. He is 30 years old and was a Yale classmate of JOHN SHETHAR, also member of the Weyerhaeuser pulp and board sales staff. . . .

DR. JOHN R. FANSELOW has retired as asst. to the manager of mills, Kimberly-Clark, ending 30 years with K-C, and has joined the faculty of the Paper Technology Dept., Western Michigan U., Kalamazoo. Before joining K-C he taught chemistry at U. of Wisconsin and Culver Military Academy . . . by the way, the paper school at Western Michigan has over 100 students this fall, of whom 23 have industry scholarships. Graduates employed in this industry now total 87 . . . quite a growth for one of the youngest paper schools. . . .

RUTH SHALLCROSS, consultant to the Institute of Paper Chemistry, where she taught economics for the past ten years, is now teaching at the Lake Erie College for Women—two courses in economics and one in American history. . . .

Changes at Wisconsin Rapids div. of Consolidated Water Power & Paper Co.: W. C. MCLENDON retires from tech dept. staff, is succeeded by HUGH BURNIE as project engineer of the dept.'s coating section; WILLIAM HASELOW takes over Mr. Burnie's old job as div. chemist; RICHARD L. SLEIGHT is appointed to new position of maintenance engineer; VICTOR YOUNG is named design engineer and asst. maintenance engineer; CARL JOHNSON, maintenance coordinator; and ELMER JOHNSON, millwright foreman. . . .

Norman Raymaker Is Cheboygan Mill Supt. . . .

. . . at Cheboygan, Mich. Mr. Raymaker joined Charmin Paper Product's as fifth hand on a paper machine in 1929. Donald Schultz, chemical engineer, succeeds him as div. B paper mill supt. Gerald White, accountant in the Green Bay, Wis., general office, transfers to Cheboygan as div. plant accountant. Cheboygan is new division of Charmin.

NORMAN O. SEAGRAVE, president, Port Huron Sulphite and Paper Co., died unexpectedly of heart disease on Oct. 24 at his home in Port Huron, Mich. Mr. Seagrave was president of the Tissue Assn. . . . CHARLES A. SOMMERS, 76, former secy.-treas. of Kimberly-Clark Corp., Neenah, Wis., died recently. . . .

Douglas Robbins and Co. has moved to Lockport, Ill., where HAL BOGNER is manager. New address is P. O. Box 55 and phone is Lockport 1743. The firm represents Nichols Engineering, Felker Bros., Fabri-Valve Co. of America, Sveen-Pedersen Sales and Vapo Systems. . . .

ADMIRAL ARTHUR W. RADFORD, recently retired as chairman of the Joint Chiefs of Staff, joined Champion Paper and Fibre, as consultant on international trade. . . .

New vice presidents of The Mead Corp. are: ROBERT J. BLUM, pres., Mead Board Sales, Inc. and Excello Paper Products; ARTHUR L. HARRIS, pres., Mead-Atlanta Paper Co.; and H. WARREN KAMPF, pres., Mead Papers, Inc. . . . WAYNE W. JACKSON, pres., Hoerner Boxes, Inc., Keokuk, Ia., was elected president of the Fibre Box Assn. A native of Keokuk, Mr. Jackson has been with Hoerner since 1924. . . . RUDY P. SALZMAN is new western central regional sales mgr. for Marathon Electric Mfg. Corp., Wausau, Wis., operating from Indianapolis and Chicago. He will direct sales in Ind., Ill., Ky., west Mich. and east Mo. . . .

RUFUS BARGER, supervisor at Champion Paper and Fibre Co.'s Ohio div., has received the rank of "Kentucky Colonel" from GOV. CHANDLER. . . . JOHN N. MORFORD has joined Ohio Boxboard Co., Rittman, O., as employment mgr. He has a b.s. from Glenville (West Va.) State College, and m.a. from Marshall College. Another appointment at Ohio Boxboard is RAY MELTON, mill cost accountant. . . .

E. O. WOOD was promoted to chief planning and development engineer for Minnesota and Ontario Paper Co.'s central engineering div., International Falls, Minn. Mr. Wood was formerly resident engineer at Mando's Kenora, Ont. mill. . . . He is a native of Wynyard, Sask., and graduated from the University of Manitoba in 1945. . . .

Stevens ..... Arvold

Promotions at Wausau Paper...

GLENN STEVENS, secy.-treas. of Wausau Paper Mills Co., Brokaw, Wis., since 1948, was named exec. vice pres. WILLIAM V. ARVOLD, tech. director, was appointed to new office of mill mgr. Other new assignments are Frank Strout from cost analysis to treas., Robert Howard, present tech. asst., to tech. director, and Paul Schultz, Jr. from office mgr. to asst. secy.-treas. Peter J. Langmuir is new director, succeeding Frank Dvorak who died recently. George Ruder, present director, was named corporation secretary.

STANLEY O. BAUGHMAN was appointed plant manager of Container Corp. of America's new Dolton, Ill., corrugated box plant, now under construction. H. R. JONES is new plant manager of the firm's Muskogee, Okla., plant. . . .

SAM GURLEY, JR., v.p. for sales for Olin Aluminum, produced by Olin Mathieson Chemical Corp., announced the appointment of Lafayette Steel & Aluminum Corp., 4100 South Karlov Ave., Chicago, Ill., as distributor for Olin Aluminum. WILLIAM H. HUGUS is v.p. and gen. mgr. of Lafayette. . . . CHESTER A. LAWTON is manager of American Potash & Chemical Corp.'s new district office at Columbus, O., covering Ohio, east Ind., south Mich. and Ky. . . .

Southern

Memo from WFD

The Southern Exposure: Afterthoughts from the Southern and Southeastern convention in Jax—the convention seemed a little more subdued than usual this year. One of the high spots: the dinner-dance tossed by the newly-organized Southern industrial affiliates. Mrs. TOM COLDEWEY, wife of the St. Joe Paper Co. v.p., stopped the show when she drew her own name for the door prize. New officers of the affiliates organization (as yet unnamed, although someone has suggested "Cotton Pickin' Peddlers" as a possible title) are

Lockport Felt's GEORGE HARDAKER, pres.; Nopco's JOHN GAMMON, v.p.; KEN YOUNGCHILD, of American Cyanamid, secty-treas. and VINCE WATERS, recording secty. GEORGE and Mrs. HARDAKER were each presented with orchids at dinner—in honor of their 37th wedding anniversary, celebrated that night.

RAY BASSO, of Buckman Labs, and FRANK ELSER, E. D. Jones, organized successful fishing trip and VERNON KNIGHT, Eastwood-Nealley, and DAVE ELMORE, Asten-Hill, as usual handled golf.

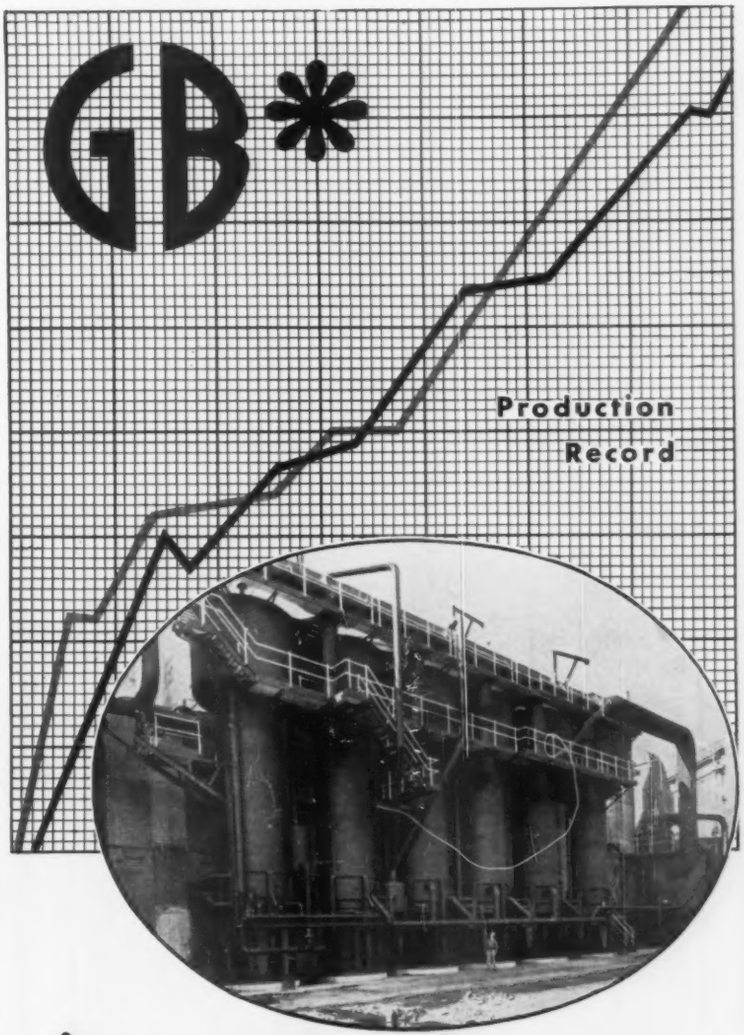
Millmen had a double treat, a morning trip to Hudson Pulp & Paper's new tissue mill and an afternoon view of St. Regis' mighty new "Seminole Chief" paper machine. . . . St. Regis gen. supt., JOHN VICTOR, and paper mill supt. "JEW" MCLEOD, took their first time off since the machine started up to attend meetings. . . . PHIL HANNON, pulp mill supt. at Continental Can's Southern Advance div., and Mrs. Hannon are justly proud of their two oldest sons, each of whom will present them with grandchildren soon. . . . JACK and JULIE CHANDLER, also proud of

Leroy Lee, Div. Engineer, Mead Corp.'s Heald Div. . . .

. . . at Lynchburg, Va., was formerly chief draftsman at Chillicothe, O. div. Mr. Lee succeeds William P. Guenther, who died recently of a heart attack. Mr. Lee graduated from the U. of Minnesota in 1947 and joined Mead as an engineering trainee in Chillicothe.

John W. McNichol, Gen. Mgr., Scott's Southern Division . . .

. . . has been exec. asst. A graduate of St. Joseph's College, Philadelphia, Mr. McNichol was on the world champion rowing eight in the 1930 Olympics. He joined Scott Paper Co. in 1939. In his new position at the company's Mobile, Ala., plant he will take over the functions of Dennis E. Cousins, recently retired.



*means Good Business...

This Goslin-Birmingham self-supporting sextuple effect evaporator installed at a leading Southern Paper Mill is designed for two steam pressures. Provisions for another body at a future date will convert the evaporator to a septuple unit for greater steam economy.
Regardless of size, G-B's experienced process engineers will design a unit to handle any required evaporation you specify.

GB
GOSLIN-BIRMINGHAM
MANUFACTURING CO., INC.
BIRMINGHAM, ALABAMA

Strictly Personal

son JOHN, recently named pres. of freshman class at Vanderbilt U.

W. H. MAXWELL will be supt. of the new multiwall bag plant at Bogalusa and DON NADIG will be his asst. Both are Crown Zellerbach coast veterans. Mr. Maxwell was formerly supt. at San Leandro and Camas and Don Nadig was asst. supt. at Port Townsend. . . . HANSELL WADE was gifted with a wrist watch from the local union at Brunswick Pulp & Paper just before he left for his new job as supt. of the Marathon mill at Butler, Ala. . . . B. R. HARWELL, recent graduate of the U. of Ark., is new sales rep. with Walworth, presently in training in Atlanta. R. E. (BOB) ENGLEY, Walworth's Southern mgr. has a new address: 990 E. Kenilworth Cir., Stone Mountain, Atlanta. . . .

N. W. QUARTERMAN, a veteran with Brunswick Pulp & Paper since 1938, has been named a process engineer and KARL MESCHKE, Brunswick process engineer, has moved to Chillicothe, O., to a technical position. . . . DONALD SIBLEY and T. T. THORNE, JR., have joined the Allis-Chalmers Southern staff, Mr. Sibley in Charlotte and Mr. Thorne in Washington, D. C. . . . H. ARTHUR MALONE has been promoted to asst. finishing supt. at Rayonier's Fernandina Beach plant.

JAMES M. VAN HOOSE, former technical dir. and onetime UME supt. at IP's Natchez mill and lately prod. supt. at Camden has been boosted to asst. mill mgr. of the Camden mill. . . . J. A. KERR, asst. sales mgr. at Bemis Bro. Bag Co. in Mobile, Ala., has been named sales service mgr. Babcock & Wilcox has moved its dist. sales office in Augusta, Ga. to Room 408 of the News Building, 725-31 Broad St. . . . LEWIS CUTTER, Annapolis graduate, is now gen. mgr. of Container Corp.'s Ft. Worth, Tex., corrugated plant. . . . EDWIN SHEPPARD, onetime ind. engr. at Owens-Illinois' Jax mill has assumed duties as maintenance and electrical engineer at Gulf States' Demopolis mill. CARL H. NOBLES, JOHNNY COPELAND and FRANK MILLER will all be maintenance tour foremen at the new mill. . . . C. CLINE PETERS has been promoted to asst. to the mgr. of pulp production at Riegel-Carolina. . . .

West Monroe, La., home of Olin Mathieson's Brown paper div., is a town with a sense of humor. The sign which greets visitors driving into town says: "Welcome to W. Monroe, La.—26,715 friendly citizens . . . and one old grouch."

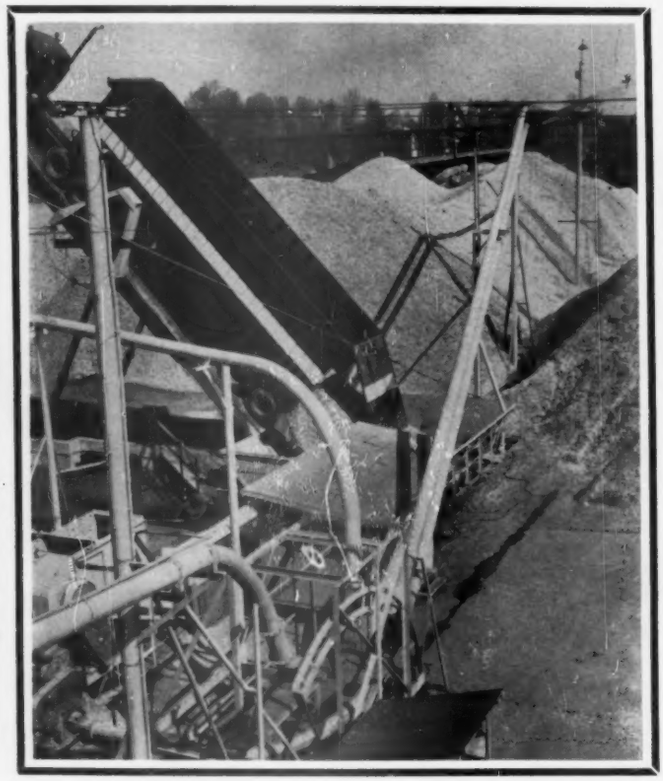
Gov. S. M. GRIFFIN of Georgia toured Rayonier's expanded Jesup, Ga., mill and was hosted there by R. F. ERICKSON, vice pres. engineering; F. B. DOHERTY, gen. mgr. of Southeast cellulose mfg.; and W. A. CAWLEY, Rayonier sanitary engineer.

OTHA WINNINGHAM, asst. mill mgr., is now prod. supt. at Bowaters' Calhoun, Tenn., mill and J. F. MCINNES has been appointed asst. chief eng. (USA) of Bowaters Research and Development, Inc., at Calhoun. . . . LEROY LEE, chief draftsman at Mead Corp.'s Chillicothe, Ohio,

Meyer ..... Timmis ..... Sutton

Bowater Promotes Three . . .

AUGUST B. MEYER was named president of Bowater's Southern Paper Corp., Calhoun, Tenn. D. W. TIMMIS was appointed first vice pres. and V. J. SUTTON was named vice pres. i/c operations. K. O. Elderkin, former pres. of Bowater's Southern, is now president of Bowater's Development Corp.



CUT CONVEYOR COSTS

One Rader chip conveyor does multiple duty for the Oregon Pulp and Paper Company in Salem, Oregon; builds open storage with segregated species, reclaims from open storage to four inside chip bins 700 feet away, or reloads trucks for transfer to another mill.

RADER PNEUMATICS, INC.

1739 N. E. 42nd Avenue Portland, Oregon

Vancouver, B.C. 4645 Main St. | Preston, Ont. Canada | Eureka, Cal. Box 61 | Boston, Mass. No. 10 High St. Rm. 716 | Memphis, Tenn. Box 3722 Municipal Airport

div., moves to Mead's Heald Div. at Lynchburg, Va., as div. eng., the spot vacated by the untimely death of WILLIAM P. GUENTHER.

This is the staff lineup for IP's Pine Bluff mill: D. WEATHERLY (Springhill) kraft pulp mill supt.; R. M. QUINN (Springhill), paper mill supt.; C. H. POWER (Moss Point), chief chemist; H. C. McGOUGH (Natchez), power supt.; B. E. TOWNSEND, Pine Bluff, maintenance supt.; R. FREELAND (Springhill), finishing sup., H. CROW (Springhill), woodyard supt.; H. PELLETIER, groundwood supt.; W. R. GAMMILL, plant engineer; J. D. HODGE, chief electrician. As previously announced, HOWARD HINMAN (Georgetown) is mill mgr.

R. E. HELSABECK is new socket screw field representative for The Bristol Co. at its Houston, Tex., office. A native of Winston Salem, N.C., he attended North Carolina State College. . . .

Northeast

Memo from MRC

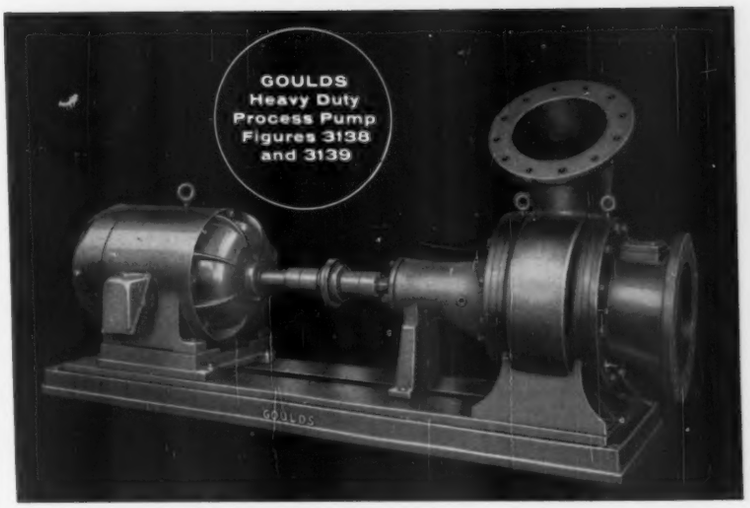
It's holiday time when we "defrost" a little and remember that we were made "a little less than the angels."

And as you read this column about men going up the ladder—remember the saying—"behind every successful man there's a woman—telling him that he's not so hot."

The keys for the first Edsel to be sold were given GEORGE WALLACE, president, Fitchburg Paper Co. The model: a shiny black convertible. Mr. Wallace was among Northeasterners previewing the new Thurso pulp mill. He piloted his seaplane to the Seigniory Club at Montebello, Que., then back to New York with guest passenger HAROLD HOLDEN of Eastern Corp. . . . Also taking the flying route to Thurso was LYMAN BEEMAN, president of Finch, Pruyn & Co., Inc. His son, DAVE, works now with Sanitary Paper Mills. . . . RUDY GREEP, mill manager, S. D. Warren Co., made the drive from Cumberland Mills, Maine. . . . Other guests were ED OLMSTEAD, president, Eaton-Dikeman, DAVE EMERSON, treasurer, Rhode Island Card Board Co.; RUSS GARFIELD, vice-pres., Ashuelot Paper Co.; BOB BROWN, vice pres. Atlantic Carton Co.; HAROLD FAIR, president, Brown Co.; NORMAN BEARSE and BILL McADAM, Champion-International; TED FOSTER II, Foster Paper Co.; DAVE KNOWLTON and RIED CAMPBELL, Knowlton Bros., and T. T. "TAD" DUNN, Union Bag-Camp. . . .

LAMAR M. FEARING and WILLIAM S. SNYDER are now vice presidents of International Paper Co. Both continue as asst. general sales mgrs; Mr. Fearing for primary grades of paper and board, Mr. Snyder for converted products. . . .

HUGH H. MORTON is now production



To handle **rough pumpage**
you need a pump like this

These new pumps are specially designed for tough jobs in pulp and paper mills—for digester service, bleach liquor recovery and stock handling. They are designed to stand up under temperatures to 350° F., pressures to 400 lbs.

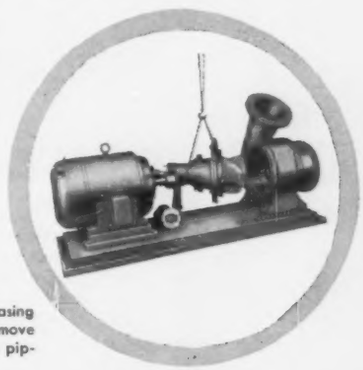
Self-venting discharge ends air-binding, insures steady flow. Ejector vanes keep solids away from the back wall of open, nonclogging impeller. Impeller-to-sideplate clearance externally adjustable. Hook-type shaft sleeve contracts or expands with temperature changes, fully protects shaft.

For pumping corrosives

Goulds Fig. 3138-39 pumps are available with fluid ends in all iron, bronze fitted, all bronze or Type 2 Ni-Resist, nickel-aluminum bronze, steel and steel alloys (all sand cast machineable alloys).

These special materials of construction are available in all four sizes, with capacities to 9000 GPM, heads to 160 ft.

Full details in Bulletin 723.4.



Easily dismantled. The vertically split casing and "back pull-out" design let you remove the rotating element without disturbing piping, pump case or driver.

GOULDS

PUMPS FOR THE PULP AND PAPER INDUSTRY

GOULDS PUMPS, INC.
Seneca Falls, N. Y., Main Office and Works

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CHICAGO, 53 West Jackson Blvd.
HOUSTON, 2314 Main Street
NEW YORK CITY, Room 1503, 11 Park Place
PHILADELPHIA, 2099 North 63rd Street
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West Coast Representative: GOULDS PUMPS Western, Inc., 1919 N.W. Thurman St., Portland 9, Oregon
In Canada: The A. R. Williams Machinery Co., Ltd. . . . in all principal cities

PULP & PAPER

Strictly Personal

manager i.c all production depts., S. D. Warren Co.; JOHN F. LANGMAID, JR., is quality control mgr. for Warren's Cumberland Mills and Central Mill; LAWRENCE PENNELL becomes chief inspector under Mr. Langmaid. RICHARD C. PORTER is supt. of paper machines, with RUSSELL DAY, his asst. in charge of plain papers and WILLIAM VAN VOORHIS, his asst. in charge of machine coated paper machines. . . .

Up the ladder at Hammermill are KARL E. VOGEL to asst. pulp mill supt. MERLIN J. SMITH to asst. maintenance supt., ROBERT H. WEISENFLUH to planning engineer and STEPHEN E. MARCINKO and EDWARD L. GLOVER as area engineers. in the paper mill. LLOYD "CURLY" FULLER moves up from backtender to paper mill supervisor. . . . BOB YOUNG, general supt., recently celebrated 40 years with Hammermill. . . .

RUSSELL ELSTON is new tech. asst. to res. mgr. BURT KASSING of the Nekoosa-Edwards Paper Co., Inc., Potsdam, N.Y., mill. A 1947 graduate of the University of Wisconsin, he was in the pulping and papermaking section, Institute of Paper Chemistry, for six years. He has been a chemical engineer in the Nekoosa, Wis., mill since 1956. . . .

Norman V. Edmonson, Paper Mill Supt., Scott's Chester, Pa., Mill

. . . A graduate of North Carolina State College and the Institute of Paper Chemistry; with Scott since 1938. In 1953, after serving as director of technical control, he moved into production as a division mgr. in the paper mill, serving until promoted to supt.

HENRY C. SCHRAMM, chief engineer, West Virginia Pulp and Paper Co., Williamsburg, Pa., has retired. He begins a new career as instructor at Altoona Undergraduate Center, Pennsylvania State. . . . ANDREW J. SCHRODER, 2nd, is now a director of Scott Paper and in new post of administrative vice president. Scott has consolidated production, engineering and research under PAUL C. BALDWIN; marketing of retail products under HARRISON F. DUNNING; marketing of industrial products under G. WILLING PEPPER; and future planning under JAMES L. MADDEN, all vice presidents. . . .

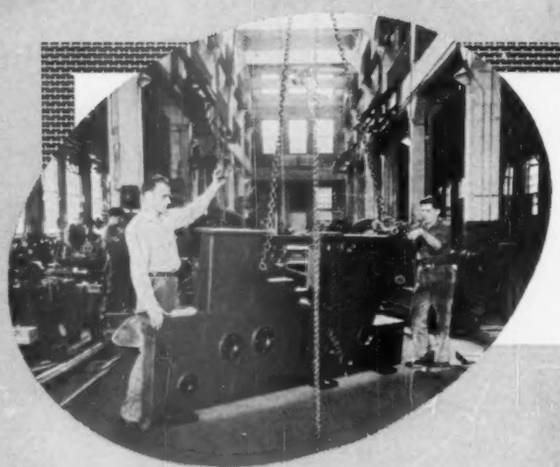
VINCENT A. MORRISON succeeds retiring CLEMENT W. CONNORS as acting supt. of Oxford Paper Co.'s Maine coated dept. . . . HARRY HELMS is new instrument engineer for Downingtown Paper Co. . . .

ED OLMSTEAD, pres., Eaton-Dikeman Co., is now chairman of the Penjerdel Supts, which means the Spring meeting will be held at York, Pa., and will visit his mill. . . . H. VAN RYPER (VAN to everybody), of Bolton-Emerson, is affiliates representative, while DUDLEY NIXON of Geigy Dyestuff, steps in as secretary and LOU SCHILLO, Stowe-Woodward, as treasurer. First vice chairman is JOHN VERWAYEN, chief engineer, Gibraltar Corrugated. . . .

WALT MOREHOUSE of Nopco Chemical, subbed as m.c. for GLEN "TINY" RENEGAR, at the P.P.P. (Penjerdel Paper Peddlers) breakfast show. Mr. Renegar was in West Germany helping Container Corp.'s new mill get started. . . .

We spotted BOB VAN SANT, pulp sales, Perkins-Goodwin, window shopping along "musical instruments row" in Cellulose City recently, for a set of drums for his youngster. He'll be sorry. . . .

"From ingot to fourdrinier wire"



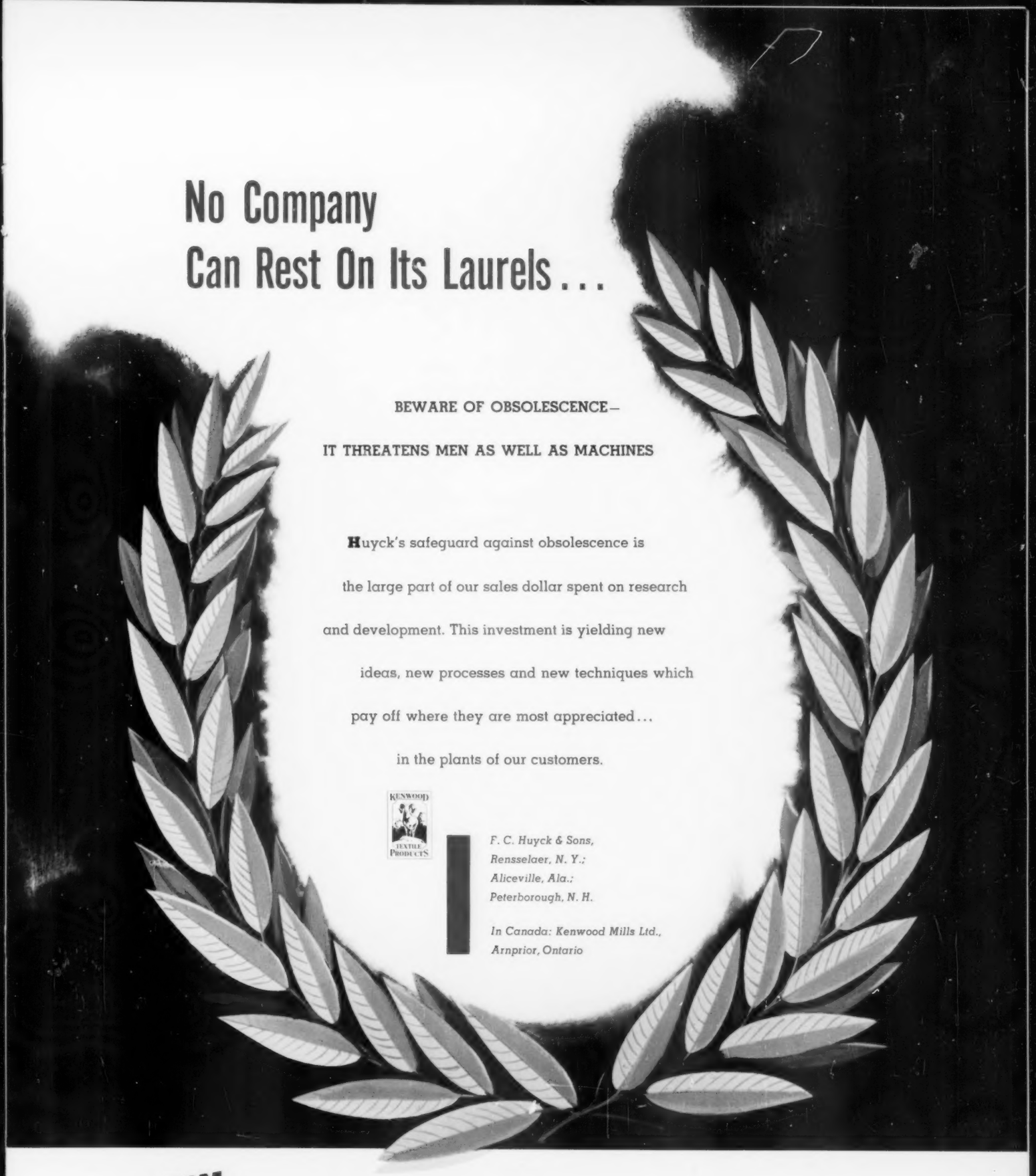
HAIRSPRING ACCURACY — BRIDGE-BEAM SIZE

Our machine shop doesn't make hairsprings or bridge beams, but our maintenance and construction operations demand equal versatility from our men and machines. Hub of an integrated operation such as ours, its skilled personnel are ready to machine a part to a fraction of a thousandth of an inch, on a tiny instrument part or a huge loom frame.

Because our plant is *completely integrated*, every wire we ship has undergone thorough and continual analysis, control and testing from the raw metals to your finished fourdrinier wire ready for quality paper production.

We are proud to say they are *truly ours* — "from ingot to fourdrinier wire."

EASTWOOD-NEALLEY CORPORATION
Belleville, N. J.



No Company Can Rest On Its Laurels...

BEWARE OF OBSOLESCENCE—

IT THREATENS MEN AS WELL AS MACHINES

Huyck's safeguard against obsolescence is the large part of our sales dollar spent on research and development. This investment is yielding new ideas, new processes and new techniques which pay off where they are most appreciated... in the plants of our customers.

KENWOOD TEXTILE PRODUCTS

F. C. Huyck & Sons,
Rensselaer, N. Y.;
Aliceville, Ala.;
Peterborough, N. H.

In Canada: Kenwood Mills Ltd.,
Arnprior, Ontario

NEW HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870

PULP & PAPER

Strictly Personal

KEN D. LOZIER, vice pres., St. Regis Paper Co., recently addressed the Sales Executives Club of the Greater Bangor area. . . .

FRANK A. BORGES, asst. mgr., production, West Virginia Pulp and Paper Co.'s Luke, Md. mill has retired. . . . W. E. BYRON BAKER, director of research, New York and Pennsylvania Co., Inc., died of a coronary occlusion on Oct. 30. . . .

Last month we saluted Finch, Pruyn & Co., Inc. on start up of its new neutral sulfite pulp mill. Here are the men who make it work. . . . RAY H. TAYLOR is supt.; JIM CRUM, DICK DINGMAN and JOHN MCCOY, tour foremen. Digester operators are JOE MANUELE, TONY ROSS, FRANK POUNTAIN and PETE POULOS. Chemical makeup man is HAROLD RICE. Bleach plant operators are CLOVER CHURCH, CHARLES WESTFALL, DICK LONGDO and LOU GONYEA. Testers are GEORGE GRENON, LEONARD WEEKS, BOB LYONS and GORDON JONES. . . .

CHARLES E. MYERS is transportation mgr., P. H. Glatfelter Co. and DAVID H. HOOVER is shipping supt. . . . HOWARD E. HEHMS is now general sales mgr., Industrial Chemicals Div. American Cyanamid Co. . . . A. GREGG NOBLE steps up as asst. to the director of operations, Solvay Process Div., Allied Chemical & Dye Corp. . . . ALFRED J. DICKINSON has joined Freeport Sulphur Co. as v.p. and sales mgr., succeeding the late ROY B. JOHNS. . . .

From Our-Leave-Em-Smiling Dept., comes this: A Texan is one who sends CARE packages to his friends in Westchester. . . .

Pacific Coast

Memo from LHB

BEN A. WILSON, mgr. of mfg. for Fibreboard's building materials div., was appointed director of purchases for Fibreboard Paper Products Corp., 475 Brannan St., San Francisco. Mr. Wilson is a graduate of the U. of Colorado. . . .

SAM A. SALMONSON, pulp mill consultant since retiring as supt. of Soundview Pulp Co., has purchased a home on the Oregon Coast at Yachats. . . .

GORDON PETRIE, western sales mgr., B. D. HARTEL, W. S. MILNE and R. P. KAST, sales engineers, The Black-Clawson Co. moved in new quarters at 1632 S.W. Morrison St., Portland 5, Ore. Telephones, Capital 6-3951 and 6-3952. . . .

Dr. W. W. MOYER, director of research for Crown Z, and H. C. GLAZE, mgr. of General Electric's Spokane apparatus sales div., appointed to Washington State Institute of Technology advisory board. . . .

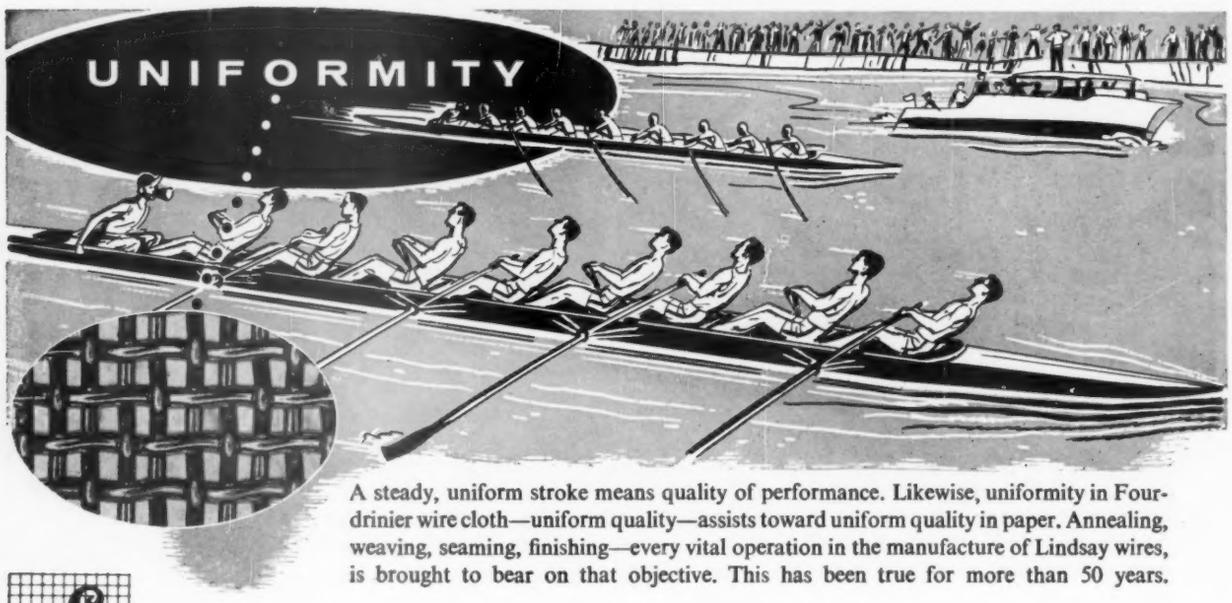
We erred last month in listing J. E. LAMBERT as resident mgr. for the Crown Zellerbach Camas, Wash. mill. He is gen. supt., woodmill, finishing and services at Camas. F. O. BOYLON has been, and still is, resident mgr. . . .

PAUL J. LENTZ promoted to sales mgr. of Van Waters & Rogers Inc.'s Portland pulp and paper dept. . . .

A. K. HALLER promoted from Orzan production foreman to acting technical supervisor at CZ Lebanon division. . . . JOHN W. KENNEDY, Stauffer Chemical sales staff, transfers from Los Angeles to North Portland office. . . .

VERA W. BERNEY, women's personnel supervisor at CZ Camas mill, was a participant guest in the National Manpower Council's recent conference on womanpower at Columbia University. . . . BERT L. CARR, operating engineer at CZ Port Townsend, promoted to asst. supt. steam and power as successor to LESLIE H. SCOTT who became steam-power supt. . . . DAN LEARY, production planning supervisor of Western-Waxide North Portland plant, promoted to production planning mgr. at San Leandro. . . . DON OSBORNE, CZ West Linn personnel supervisor, elected pres. of Portland chapter of Pacific Northwest Personnel Mgt. Assn. . . .

LEO BAILEY, production planning, CZ West Linn, was promoted to production planning asst. and transferred to Camas. . . . HANS HEIJNE, whose father is presi-

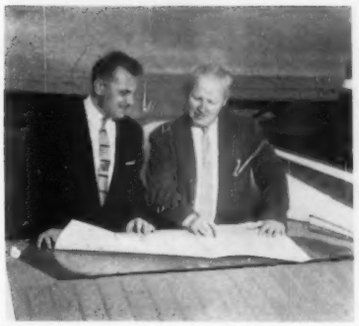


A steady, uniform stroke means quality of performance. Likewise, uniformity in Fourdrinier wire cloth—uniform quality—assists toward uniform quality in paper. Annealing, weaving, seaming, finishing—every vital operation in the manufacture of Lindsay wires, is brought to bear on that objective. This has been true for more than 50 years.

LINDSAY WIRES

FOR PAPER MANUFACTURING

THE LINDSAY WIRE WEAVING COMPANY
Cleveland 10, Ohio



Ihlenburg ..... Salmonson

Flying Felters

F. H. IHLENBURG, who recently joined Draper Bros. Co. as West Coast technical service representative, and WALTER A. SALMONSON, Draper's West Coast representative, check flight map on plane wing before taking off in 4-place Cessna 182 acquired to speed up technical service from their Portland, Ore., headquarters. Mr. Ihlenburg flew bomber and pursuit aircraft in ETO during World War II.

dent of Munksjo Paper Co., Jonkoping, Sweden, is working at Camas after 8 months in Southern and Eastern plants. . . . FRANK C. BROOKS, of Puget Sound Pulp & Timber Co. personnel dept., is chairman of Wash. State Labor-Management Safety Conference planning committee.

HARRY W. HUNTSMAN (51), res. mgr. of Los Angeles Western-Waxide plant, died Sept. 16. . . .

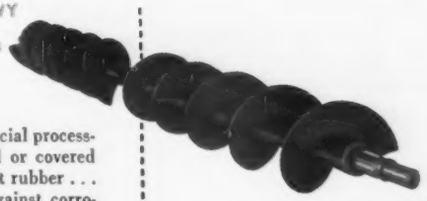
Portland men elected as international officers of International Brotherhood of Migratory Peddlers for coming year, Pres. JOHN L. AYRES, Du Pont Co.; vice pres. GORDON PETRIE, Black-Clawson; secy. HUGH OSBORN, Lockport Felt; treas. TOM M. JAMES, JR., Flox Co., and R. BURKE MORDEN, Morden Machines, honorary board member as retiring president. . . . IBMP Waiting Room No. 2, Seattle, elected C. H. PEDERSEN, Electric Steel Foundry, as president to succeed RUSSELL VOGNILD, Hooker Electrochemical, E. E. STEPHENS, Bumstead-Woolford Co., as v.p., C. D. RIES, General Electric, as secy., and E. R. BARRETT, Pulp Bleaching Co., as treas. . . .

ROY R. WIBERG, formerly project engineer at Weyerhaeuser Longview Pulp Div., joins Georgia-Pacific Paper Co. as technical supt. . . .

Customer service activities, distribution and main mill sales of Simpson Paper Co. have been combined under W. R. DENMAN, JR., former head of quality control. He becomes administrative assistant for sales (a newly created post), R. A. GATES advances to Calif. district sales mgr. R. F. SULTZE who received ph.d. the Institute of Paper Chemistry, succeeds Mr. Denman as quality control director. . . . ELROY C. CARLSON joins Georgia-Pacific Corp. as staff engineer, according to ROBERT E. FLOWERREE, JR.,

NO SHAPE TOO SCREWY

for ACE Rubber Linings and Coverings



Most any size or shape of special processing equipment can be lined or covered with quality ACE hard or soft rubber . . . for meticulous protection against corrosion, to resist abrasive wear, or to provide electrical insulation. Ask for recommendations.

STOP VALVE CORROSION

at lower cost

There's an ACE hard rubber, rubber-lined, or plastic-lined valve for every corrosion application. Sizes from 2" to 24". Diaphragm, gate and check types. Free *Bulletin CE-52* lists chemicals that can be handled.

Take the guesswork out of CORROSION

No need for "trial and error" to find the right rubber or plastic chemical equipment. Consult American Hard Rubber Company first. Now eleven basic materials. Wide range of temperatures, pressures, strength. Backed by a century of experience. Write for facts today, or ask for name of Distributor.

FOR HIGH PRESSURES OR BIG PIPE LINES

ACE Rubber-Lined Steel . . . strength and pressures of steel plus chemical resistance of hard rubber. Excellent for alkalis, most inorganic acids, many organic acids, all salts, bleaches. Sizes 1¼" to 24" and up. *Bulletin CE-52.*

ACE-HIDE ACID PAIL

Practically indestructible

Its made of a new rubber-plastic material that's tough, resilient, suitable for handling most acids and alkalis. 3-gal. size. Easy-pour, drip-proof spout. Also 1-qt. and 2-qt. dippers, hard rubber bottles, etc. Write for name of nearest dealer.

ACE processing equipment of rubber and plastics

AMERICAN HARD RUBBER COMPANY
Ace Avenue • Butler, New Jersey
DIVISION OF AMERACE CORPORATION

Strictly Personal

vice pres. of western lumber and pulp production. . . .

Canada

Memo from CLS . . .

A. T. (Tom) Easley, resident mgr. at North Western Pulp & Power Ltd., Hinton, Alberta, reports they had their first snow "of consequence" Oct. 2—a foot at the mill and 4 ft. in the bush—followed by Indian summer but the snows came again Oct. 19-20. He and his staff were hosts recently to the Western Section of the Canadian Institute of Forestry. . . .

Dr. G. H. Tomlinson and E. K. Robinson have retired as vice pres. i/c research and development and exec. vice pres., respectively, of Howard Smith Paper Mills. Dr. Tomlinson was with the organization for 33 years and has had a distinguished career in research. Mr. Robinson was with the company 38 years.

Crabtree ..... Abbott ..... Mason

Head Howard Smith Mills

H. Roy Crabtree has been named board chairman, D. S. Abbott president, and H. E. Mason executive vice president of Howard Smith Paper Mills, Canadian fine paper manufacturers. Mr. Crabtree spent many years with the Howard Smith organization. Mr. Abbott joined Howard Smith in 1944 and was president of Arborite Co., a subsidiary, and of Alliance Paper Mills, another affiliate. Mr. Mason was recently elected a director.

Both continue as advisors. . . .

J. Gordon McKay has been appointed director of coarse paper branches and converted product sales of Canada Paper Co. . . .

About 250 Crown Zellerbach Canada employes moved up in the world recently by setting up shop in the top four floors of the new 19-story Burrard Bldg. in downtown Vancouver. . . .

Walter Koerner, pres., Alaska Pine & Cellulose, Ltd., Vancouver, B.C., is new member of the board of governors of the University of British Columbia. His brother, Leon Koerner, who founded the Alaska Pine organization in 1939, and Harold S. Foley, chairman, Powell River Co., have been awarded honorary degrees by the University of British Columbia. . . .

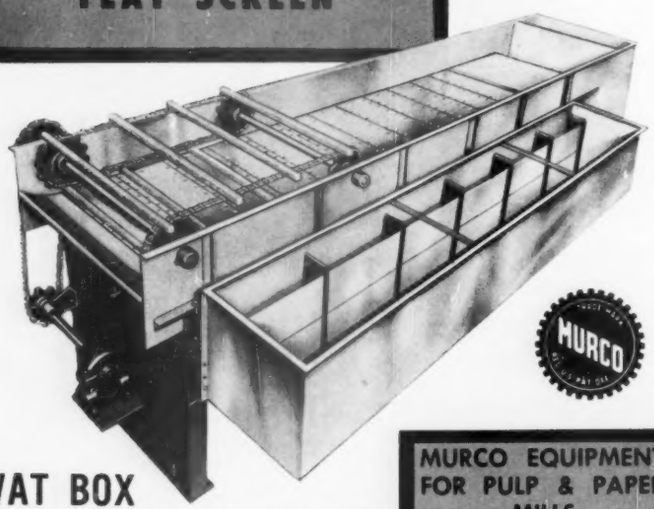
John T. Egan has been appointed cost control analyst at the Ontario-Minnesota Pulp & Paper Co.'s mill at Fort Frances, Ont., according to Mgr. F. G. Williams. . . .

L. G. Rolland, president of Rolland Paper Co., Quebec, has been named to the executive council of the Canadian Manufacturers Assn. . . . John G. Morrison, formerly asst. mgr. of Abitibi's Fort William, Ont., mill, is the new manager, succeeding J. T. Carey, retired after 23 years' service with the company. . . .

W. E. D. Gray, director of sales, Columbia Cellulose Co., and its entire sales department have moved from Montreal to the Vancouver, B.C., head office, 1030 Georgia St. West. T. N. Beaupre, exec. vice pres., says the transfer insures closer collaboration between company departments. . . .

The University of Toronto conferred an honorary doctor of laws degree on Robert W. Lyons, vice pres., and top pulpwood executive director of Kimberly-Clark Corp. He was honored for his contributions in forestry. . . .

MURCO Stainless Steel FLAT SCREEN



VAT BOX MAY BE TILTED for rapid plate change & washing out

For use on either Fourdrinier or cylinder machines, MURCO Stainless Steel Flat Screen is particularly adaptable for running different colors and grades of paper and board stock—any operation where cleaning and preparing the screen for the next run demands continuous operation without loss of time . . . plate section can be removed entirely and replaced easily instead of taking up the plates. Built for 8, 10, 12, and 14 plates, all parts in contact with the paper stock are stainless steel . . . its exclusive feature is the non-tip diaphragm actuating mechanism . . . diaphragms are designed to be easily removed without disturbing the other parts. It has eccentric drive mechanism—one drive unit for each four screen plates—eccentric and end bearings equipped with anti-friction self-aligning bearings. Its features of construction and quiet, free vibration operation with high production but low horse power requirements are surprising to mill men wherever the MURCO Stainless Steel Flat Screen is installed.

Write today for complete details

D. J. MURRAY MANUFACTURING CO.

Manufacturers Since 1883

WAUSAU, WISCONSIN

MURCO EQUIPMENT FOR PULP & PAPER MILLS

Barking Drums
Multiple Knife Pulpwood Chippers
High-Speed Wastewood Chippers
Small Log Chippers
Re-Chippers
Multiple Knife Chipper Discs
V-Type Spouts for Pulpwood Chippers
Chip Crushers
Knot Drills
Level Vibrating Double Deck Chip Screens
Knot Screens
Stainless Steel Flat Screens
Pulpwood Slashers
Hydraulic Wood Splitters
Quick Opening Gate Valves
Roll Heading Machines
Pneumatic Winder Shafts
Mechanical Winder Shafts
Hydraulic Roll Lowering Tables
Power Dam Gate Hoists
GRID Unit Heaters
GRID Blast Heaters
GRID Radiators

Pulpwood Personals

Several staff changes in the woodlands organization of Howard Smith Paper Mills Ltd. and subsidiary companies: L. H. PAQUET is now purchaser and dispatcher of wood; L. B. THOMAS, chief forester for Ontario; and F. MATTE, chief forester for Quebec. Mr. Paquet was born in Windsor Mills, Que., and has been with Howard Smith for 34 years. Mr. Thomas is a graduate of the University of New Brunswick and joined the firm in 1933. Mr. Matte, chief forester for Donnacona Paper Co. Ltd. since 1948, is a graduate of Laval University. . . .

KURT MUNICH was named chief forester for Coos Bay Pulp Corp., Empire, Ore., succeeding ED HARTLEY who joined Scott Paper Co. in Everett, Wash. . . . ROGER W. WOLCOTT is new Inland Mill div. forester for Inland Container Corp. at the company's operations in Macon and Rome, Ga. . . . JOHN E. BENNETH, asst. editorial director of American Forest Products Industries, Inc., Washington, D.C., is AFPI district mgr. at Portland, Ore. He succeeds CHARLES HOONAN who is now with the public relations dept. of Crown Zellerbach Corp., Portland. . . . DR. CHARLES H. DRIVER was appointed director of forest research at International Paper Co.'s new Southlands Experiment Forest near Bainbridge, Ga. . . .

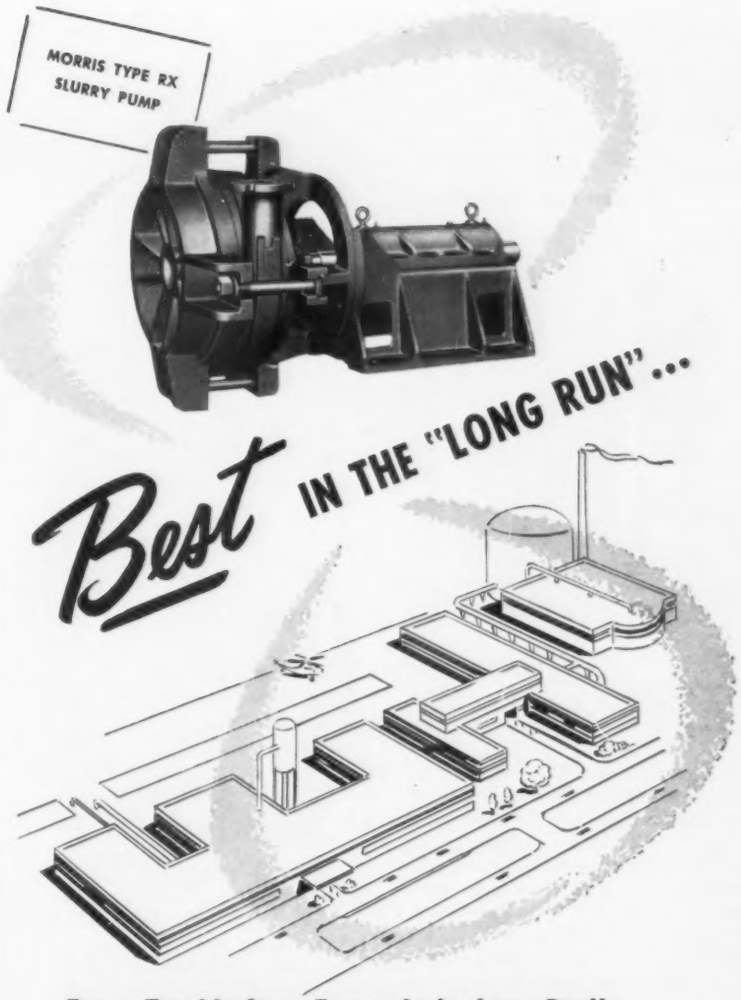
VINCENT BOUSQUET, staff asst., was named logging mgr., Weyerhaeuser Timber Co., Klamath Falls, Ore., following the retirement of L. D. "LAFE" STEPHENS. Mr. Bousquet graduated from the University of Minnesota and joined WTCO in 1943. . . .

JOHN H. BLAIR was appointed industrial relations asst., logging div., for The Ontario-Minnesota Pulp and Paper Co. Ltd. Mr. Blair has a.b.s. from the University of Toronto and joined O-M in 1956. . . .

Martinsson ..... Hunter ..... Jarvis

Staff Changes at Howard Smith

E. MARTINSSON, woodlands mgr., Ontario div., Howard Smith Paper Mills Ltd. was formerly mgr. of woods dept. Born in Sweden, he joined Howard Smith in 1926 as asst. woods supt. R. L. B. HUNTER, divisional woods supt. for Donnacona Paper Co. Ltd. since 1951, becomes woodlands mgr. for Donnacona. B. E. JARVIS, field asst. to woods supt., was named woodlands mgr. of Canada Paper Co.



Best IN THE "LONG RUN"...

For a Trouble-free, Economical "Long Run"

SPECIFY MORRIS PUMPS...

● The Morris Pump operating right now will continue to function efficiently for many years to come. Long periods of testing have proved that.

Every pump built by Morris Machine Works is extremely rugged, dependable, trouble-free; operates with minimum attention . . . cuts maintenance costs . . . can be quickly dismantled for inspection, avoiding lengthy and expensive lay-up time.

Exacting engineering and design at Morris results in pumps that are *really* better in the long run; that give peak performance for both present and future needs.

● **FREE SERVICE** Morris engineers will gladly recommend the pump best suited to your size, capacity and specifications. Send necessary data today.

MORRIS CENTRIFUGAL PUMPS

Sales Offices in Principal Cities

MORRIS MACHINE WORKS · BALDWINSVILLE, N. Y.

PULP & PAPER New Equipment and Supplies

Pocket pH Meter . . .
. . . Is Portable, Easy to Use

Applications: For pH determinations in laboratory, plant or field.
Advantages: Pocket-size, light weight and easy to use, the meter has simple instructions printed on back. Single combination electrode can be left attached to instrument when in use, leaving one hand free to write down readings. Non-spill container holds enough buffer for a day or more. Battery-powered, is inexpensive to operate.
Specifications: Beckman 18000 Pocket pH Meter is 6 in. x 3 in. x 2 in., weighs 2 lbs. Meter range is 2 to 12 pH (readable to .1 pH). Six standard batteries supply power. Glass and reference electrode combined into a single unit. Lead length is 36 in. Electrode temperature range is 0° to 50° C.
Supplier: **Beckman Scientific Instruments Div., 2500 Fullerton Rd., Fullerton, Calif., LAmbert 5-8241.**

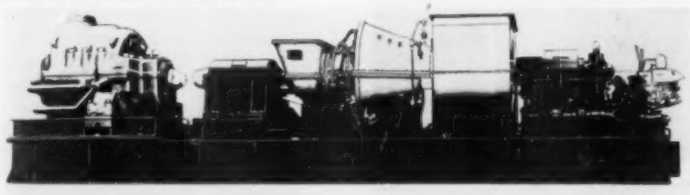
Power Steering . . .
. . . Now Available for Trucks

Applications: Handling paper rolls, other material.
Advantages: Gives fast, immediate and dependable steering action because flow divider in hydraulic system always directs fluid first to power steering unit.
Specifications: Now available as optional equipment on pneumatic-tired trucks in 3,000, 4,000 and 5,000 lb. capacity range. Factory or field installation.
Supplier: **Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore. AT 8-5011.**

Corrosion-Proof Lining . . .
. . . Used on Exhaust Fan

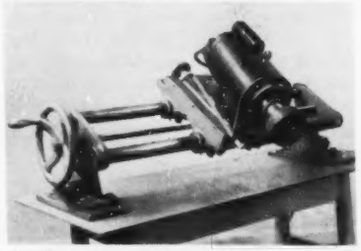
Applications: Protects housing and fan blades of corrosive atmosphere expulsion fan, handling fumes from chemical processing tanks, chemical storage areas, plating tanks and dip tanks.
Advantages: Extends working life of fan, is not effected by repeated heating and cooling.
Specifications: Can be applied in the field or by the manufacturer.
Supplier: **The Ceilcote Co., Inc., 4920 Ridge Rd., Cleveland 9, O., SHadyside 1-4220**

3250-HP Gas Turbine . . .
. . . Fits in Limited Area



Applications: Mechanical drive for pumps, compressors or generators.
Advantages: Small size and weight. Minimum cost in foundation and building. All integral piping and controls in one assembly. Only external utility connections are required to start operating. Fully automatic protection and semi-automatic starting and stopping controls require minimum operating personnel. System can be adapted to remote control.
Specifications: Operates at 8,500 rpm and any output speed can be obtained through gearing. Reaches operating speed in less than 3 min. At full load, exhaust flow is about 191,000 pph at 775° F. Turbine is 21 ft. x 6 ft. x 4½ ft. and weighs 14,000 lbs.
Supplier: **Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh 30, Pa., EXpress 1-2800.**

Wheel Grinder . . .
. . . Is High Speed, Motor-Driven



Applications: For grinding band mill and resaw wheels.
Advantages: Grinds and trues up band wheels under normal running conditions. There is no "saw travel" after grinding.
Supplier: **Hanchett Mfg. Co., Big Rapids, Mich., Phone 445, or 5727 S.W. Macadam Ave., Portland 1, Ore.**

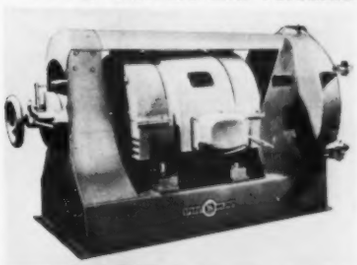
Specific Gravity Transmitter . . .
New Differential Converter Type

Applications: Continuous measurement and control of specific gravity of liquids in open vessels.
Specifications: Pressure exerted by column of reference liquid is balanced against that of an equal column of measured liquid and the differential pressure transmitted to a recording instrument actuated by a pneumatic receiver element. Range is continuously adjustable from 0-5 to 0-25 in. of water.
Supplier: **Attn. G. A. Reed, Minneapolis-Honeywell Regulator Co., Wayne and Windrim Ave., Philadelphia 44, Pa., DAvenport 9-8300. Ask for IDS 10.14-8.**

Internal Bond Tester . . .
. . . Splits Thin Paper Edgewise

Applications: Testing gummed and laminated paper.
Advantages: Is precise and easy to operate. Unique method of multiple specimen preparation saves technician's time and assures uniformity.
Specifications: Paper is laminated to 1 in. square pulling clamp. Lamination is by pressure sensitive double coated Scotch tape applied under pressure of 50, 100, 150 or 200 lbs. per sq. in. Internal strength of paper is evaluated by measuring resistance to pendulum which swings against vertical angle of the 90° top clamp and splits the specimen. There are two scales, for 0-0.250 ft. lbs. and 0.180-0.500 ft. lbs. Pointer gives fixed direct reading in 0.001 ft. lbs.
Supplier: **Scott Testers, Inc., 116 Blackstone St., Providence, R. I.**

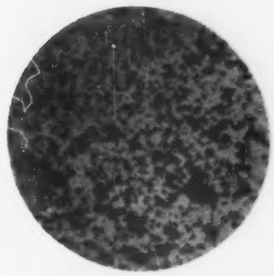
Pilot Refiner . . .
. . . Is Accurate and Versatile



Applications: May be used for experimental studies or for small commercial production.
Advantages: Precision built for accurate results, this 24 in. refiner provides accurate indication of commercial refined pulp or fiber quality. It operates with dry feed, using separately driven screw feeder, or with fluid feed.
Specifications: In standard model, parts in contact with stock are for the most part carbon steel; in acid-resistant model, all parts in contact with stock are stainless steel or alloys specifically indicated. Exclusive refining and pulping plate designs available.
Supplier: **Sprout, Waldron & Co., Inc., Pulp and Paper Mill Div. (Bulletin 184), Muncy, Pa., Phone 6-3111.**

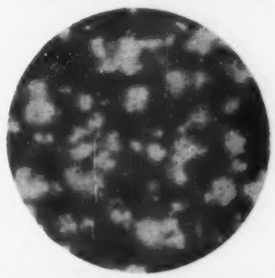
HOW SUBOX PAINTS
EFFECTIVELY COMBAT CORROSION

Subox paints go far beyond the passive protection of inert paints. The chemically-active suboxide of lead in Subox paints actually works continuously to combat corrosion, as illustrated by these photomicrographs:



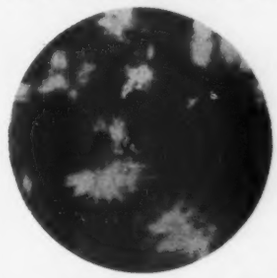
LEAD-SUBOXIDE PARTICLES

Lead-suboxide is a colloidal pigment which assures maximum penetration of a surface . . . packs to form a dense, impervious film. Two coats of Subox usually give the coverage of three of other paints . . . often, one coat of Subox is enough.



FIELD OF LEAD SOAPS

As soon as Subox is dry, lead-suboxide begins to react with the fatty acids of the vehicle to form insoluble lead soaps whose fibers bear metallic lead. These fibers intertwine to continuously build up a reinforcing film of protection.



FIBROUS STRUCTURE OF LEAD SOAPS

The fibrous film gradually strengthens and replaces the original vehicle film which otherwise would have become brittle and have largely lost its protective power and adhesion.

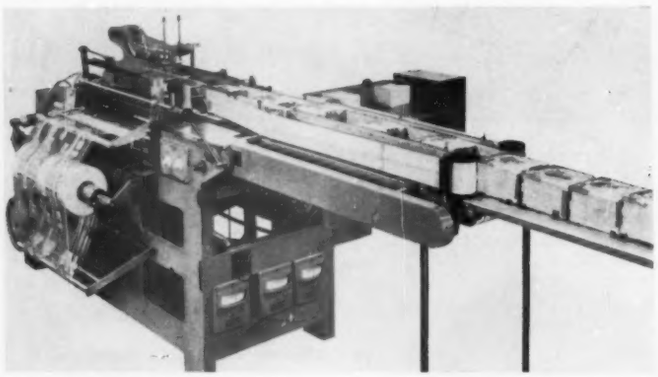
Subox paints are the only American paints made with lead-suboxide. They are economical to apply, endure for years and largely eliminate the need for scraping and repriming when repainting is required.

Write for the brochure "Subox Paints".

Subox Inc.
*Trade Mark

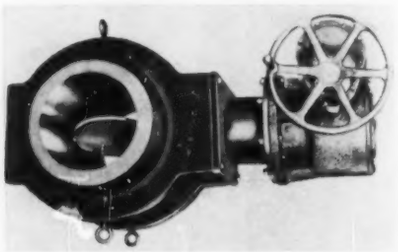
Established 1924
8 Fairmount Plant
Hackensack, N. J.

Wrapping Machine . . . **. . . Handles Polyethylene**



Applications: Packaging napkins and other flexible paper products.
Advantages: Substantial savings in use of polyethylene rather than cellophane. Polyethylene package is clear and durable. Perforated tear notch around package facilitates opening.
Supplier: **Fred Koehn, Hayssen Manufacturing Co., Sheboygan, Wis., GLencourt 8-2111.**

Butterfly Valve . . .
. . . Gives High Pressure Service



Applications: Regulating service in processing operation.
Advantages: Unusually high pressure service.
Specifications: 14 in. R-S 2500 lb. cast alloy steel butterfly valve for 2630 PSIG working pressure at 450° F. welding ends. Manual control.
Supplier: **S. Morgan Smith Co., York, Pa., York 2-3821.**

This announcement appears for purposes of record.

$12,000,000

Alaska Lumber & Pulp Co., Inc.

(a wholly-owned subsidiary of Alaska Pulp Co., Ltd., a Japanese corporation)

First Mortgage Sinking Fund Bonds, Series A, due December 31, 1976

Alaska Lumber & Pulp Co., Inc. has entered into agreements, negotiated by the undersigned, for the private sale, subject to the terms of the agreements, of the above-mentioned Bonds, delivery to be made in four equal instalments prior to October 1, 1959.

Dillon, Read & Co. Inc.

October 17, 1957

Mounting Unit and Sheave . . .
. . . Features Versatility

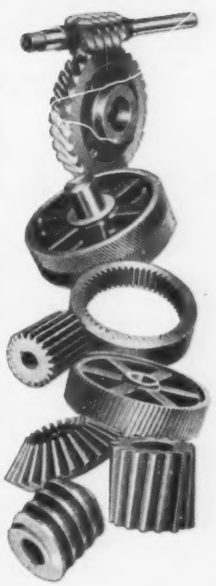
Applications: With variety of mill machinery.
Advantages: Permits placing the sheave in any position with respect to the mounting surface. Alloy aluminum provides high wear resistance. Antifriction bearings give sealed in, lifetime lubrication.
Specifications: Mounting unit consists of one mounting block with mounting holes 90° apart, two arms, one shaft, and one 4, 6 or 12 in. diameter sheave.
Supplier: **Patton Manufacturing Co., Inc., 1802 West Pleasant St., Springfield, O., FAirfax 3-5595.**

Power Controls . . .
. . . On Crawler Mounted Machine

Applications: Controls swing, travel, hoist crowd and retract, or powering load lowering and boom derricking by hydraulic power.
Advantages: Use of two levers instead of three and power control reduce operator fatigue, improve control, response and speed of operation.
Specifications: All series of Lorains can now be had with this 2-lever "Joy-Stick" power controls.
Supplier: **The Thew Shovel Co., Lorain, O., CHerry 4-1181.**

Gears with long useful lives . . .
the result of *high quality at H&S**

***Quality materials**
***Modern tooling**
***Superior workmanship**



Highly appreciated by the paper mill industry, for instance, are the large spur gears such as the one shown here. This gear has 140 teeth of 2 diametral pitch and 8″ face. It is being completed on a 100″ Fellows Gear Shaper that generates high quality external and internal spur gears up to 8″ face and 1½ D.P.

The modern Horsburgh & Scott plant is equipped with many new precision tools to meet today's demand for higher quality industrial gearing. You can judge our ability to serve you by these examples of size range:

Spur gears up to 156″ diameter
Helical gears up to 100″ diameter
Sykes Herringbone gears up to 60″ diameter
Bevel gears up to 77″ diameter
Worm gears up to 60″ diameter

You benefit by the exacting care that we exercise in every manufacturing step. Tell us your requirements; quotations will be sent by return mail.

A request on your company letterhead will bring a copy of the new H&S Gear Catalog 57 to help you design and order industrial gears.

THE HORSBURGH & SCOTT CO.
GEARS AND SPEED REDUCERS
5112 Hamilton Avenue
Cleveland 14, Ohio

Photographer Bernard Hoffman found even the free flow of CO_2 from a cake of dry ice is difficult to control.

Controlling Flow in Fluid Engineering

To tame and control flow accurately, you must relate it to pressure, volume, turbulence and other variables. That's when you can look to the engineering leadership of S. Morgan Smith.

Butterfly valves are a good example. For the majority of processing situations, a wide range of standard R-S Butterfly Valves are assembled from stock for fast shipment. But for special fluid control problems, one or more can be applied to solve your needs. Standard or special, all R-S Butterfly Valves give you uniform flow control through all positions in the normal regulating range. You get minimum turbulence and pressure drop, save on pumping power because of simplified design and streamlined vanes. Compact and light in weight, they give you quick regulation and tight closure.

To learn more about the complete SMS line of Rotovalves, Ball and Butterfly Valves, call on our nearest representative. For information on special engineering, write S. Morgan Smith Co., York, Pa.

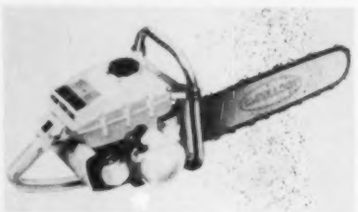
S. MORGAN SMITH SMS HYDRODYNAMICS

AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED, TORONTO

Rotovalves • Ball Valves • R-S Butterfly Valves • Free-Discharge Valves • Liquid Heaters • Pumps • Hydraulic Turbines & Accessories

Chain Saws . . .

. . . Big Power-to-weight Ratio



Applications: Include pulpwood cutting.

Advantages: "Greatest power-to-weight ratio in chain saw history," 20% more powerful than previous models, two new saws also feature improved cooling, longer life, easier maintenance.

Specifications: Direct-drive Super 44 (shown in picture) produces 6.5 hp, weighs 19 lbs., is available with 12, 18, 24 and 30 in. blades. Prices start at $253.00 with 12 in. blade and chain. Gear-driven Super 55 produces 6.5 hp, weighs 22 lbs., is available with 12, 18, 24, 30, 36 and 42 in. blades and with plunge bow for pulpwood cutting. Retails for $329 with 12 in. blade and chain.

Supplier: **McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles 45, Calif., ORegon 8-7597.**

Truck Has Dual Drive Tires

This truck of 20,000 lbs. capacity has been added to line of pneumatic-tire models by Clark Equipment Co.

Features of the CY-200: 50-50 weight distribution; planetary drive axle and 10.00 by 20-in. tires for driving power through mud and sand and over rough terrain.

Manufacturer: Clark Equipment Co., Industrial Tire Div., Battle Creek, Mich.

Carl F. Hoelderle Completes 25 Years . . .

. . . at Anheuser-Busch, Inc. Mr. Hoelderle is Lake States regional sales manager for the corn products dept. He and Mrs. Hoelderle, who live at 1122 Royce Ave., Kalamazoo, Mich., were guests of the company on a recent tour of St. Louis offices and plant, as well as Grant's Farm, home of President August A. Busch, Jr.

LITERATURE

Instrument Supplies Listed

A loose-leaf book gives specifications, part numbers and prices for more than 250 instrument parts and supplies. The illustrated catalog is divided into five sections: mechanical, pneumatic, electric-electronic, general, and tools and service. Among items covered are pressure gauge and flow meter accessories, thermometer wells, bushings and flanges, air supply regulators and filter sets, thermocouples, dew point elements, charts, chart drives, instrument pens and ink. Ask for catalog 500, The Foxboro Co., Foxboro, Mass.

Labeling for Tissue Products

True content labeling procedures for sanitary tissue products sold through retail channels, adopted by the National Conference of Weights and Measures Officials, Washington, D. C., are outlined in a new pamphlet. The procedures apply to box facial tissues, toilet tissues and household roll paper towels. Write to The Tissue Assn., Inc., 122 East 42nd St., New York 17, N. Y.

All About Valves

Catalog shows how Flo-Pilot valves are used for remote control of master valves, directional control of small single acting cylinders and for shut-off. Valves are available in ball cam, palm button, hand lever, locking hand lever and mechanical link clevis models. Sizes range from ¼ in. for 2- or 3-way air operation to 150 psi.

Write to Hanna Engineering Works, 1765 Elston Ave., Chicago 22, Ill.

High Speed Chipper Knives

Bulletin describes modern concept of custom crafting chipper knives specifically for pulp mills, also explains what efficiency to expect from chipper knives expressly made for each wood room.

Bulletin CK-557, John W. Bolton & Sons Inc., Lawrence, Mass.

Oil-Free Rotary Vane Pump

Brochure gives specifications and operating recommendations for models 2, 3 and 6 of the Dexter-Conde Dri-Air pump for vacuum and pressure applications, also describes two types of air filters for the pump and an exhaust muffler to reduce noise.

Write to Davis Spencer, Dexter Folder Co., Div. of Miehle-Goss-Dexter, Inc., Pearl River, N.Y.

Enclosed Gear and Variable Speed Drives

Folder lists all stock drive sizes and housepower ratings. Selection charts cover complete line of following types of stock drives: gearmotors, motorgears, worm gear drives, parallel shaft gear drives, in-line helical gear drives and P.I.V. variable speed drives.

Write for Folder 2642, Link-Belt Co., Dept. PR, Prudential Plaza, Chicago 1, Ill.

New Laboratory Manual

Valley Iron Works Co., Appleton, Wis., announces a new revised instruction manual for installation, operation, care and maintenance of Valley laboratory equipment including Niagara 1-1/2# beater with grinding-in instructions. This manual is available to users of Valley equipment upon request.

CIBA

CHLORANTINE FAST YELLOW P-RLSW

CHLORANTINE® FAST YELLOW P-RNLL

EXCELLENT MONEY VALUES . . .

These two Chlorantine Fast dyes are excellent money values for use on bleached kraft base stocks . . . have high brilliance which takes full advantage of today's high color bleached pulps to produce bright clean shades of spectrum purity . . . and can be used alone or in combination with shading colors to give a wide range of Yellows for many purposes.

Suitable for either sized or unsized grades of papers in light, medium, and heavy dyeings, they can be used on unbleached pulps with good results.

Chlorantine Fast Yellow P-RLSW is dischargeable with sodium hypochlorite in a single stage bleaching. It possesses excellent fastness to alkali and good to excellent fastness to acids. It is stable to pH variation, has good solubility and good fastness to light. It can be used to produce strong goldenrod shades at moderate cost.

Chlorantine Fast Yellow P-RNLL is a clean yellow somewhat redder than Chlorantine Fast Yellow P-RLSW. It has good light and water fastness and has excellent fastness to strong alkalis, hypochlorite solutions, and strong acids. It is especially useful where resistance to chemical fuming or dusts is in demand.

Your inquiries are invited on CIBA "Paper-Proved" technical information, samples and color matching.

CIBA Company Inc., Paper Chemicals Department
627 Greenwich Street, New York 14, N. Y.

2 minutes to FENWAY PARK
2 minutes to LEAHY CLINIC
in
Boston
Centrally located in beautiful Kenmore Square area near Fenway Park, Leahy Clinic and Braves Field. 180 comfortable rooms at moderate rates. Dining Room. Completely Fireproof. from $2.50 per person
FAMILY PLAN
SPECIAL WEEKLY RATES
Joseph W. Nardone
Managing Director
Hotel
Buckminster
645 Beacon St.

New Water Softener Bulletin

Features of Allis-Chalmers zeolite water softeners which assure efficient, dependable and easy operation are described in a new bulletin which explains how standard units can be easily adapted to meet individual plant requirements where the applications involve elimination of costly maintenance due to scaling of boilers, pipes and heat exchange tubes, the production of chemically suitable water for paper making, and the correction of other special water problems.

Copies of "Sodium Zeolite Water Softeners," 28B7107A, are available from Allis-Chalmers, Milwaukee 1, Wis.

SONOCO PAPER MILL
AND SPECIALTY
CORES
ECONOMICAL
CARRIERS FOR—
• NEWSPRINT • WAX PAPER
• PARCHMENTS • CELLOPHANE
• CASH REGISTER AND
ADDING MACHINE PAPER
• BLUEPRINT PAPER • TAPES, ETC.
with or without BERMICO Metal Ends
Sonoco DURO Paper Mill Cores, with Bermico Metal Ends, combine super-strength, long service and low cost. A special scuff-resistant paper is used for the outside surface. Available with metal ends in sizes 3" to 6" I.D., in any length. Also available is the economical RHINO non-returnable core in standard and special sizes.
SPECIALTY CORES from ¼" O.D. and up, in lengths from ½" to 24' or longer with smooth or rough surfaces. Furnished in solid colored stock, plain or with special inside and outside wrap.
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LONGVIEW, TEXAS • PHILADELPHIA, PA. • LOS ANGELES, CAL. • GRANBY, QUEBEC
BRANTFORD, ONT. • MEXICO, D.F.
DEPENDABLE SOURCE OF SUPPLY

Joseph B. Ulicny, President of Pusey & Jones . . .

. . . and new chief executive officer of 109-year-old paper machinery and shipbuilding firm. He and group of Eastern businessmen purchased it; announced plans to revitalize and expand operations. Mr. Ulicny was officer of John Waldron Corp. Other new Pusey-Jones directors are H. R. Baxter, pres., Baxter & Stewart Inc.; C. W. Blount, vice pres., Bakelite Co.; Donald W. Hedges, Mancill, Cooney, Semans and Hedges, Philadelphia attorney; Rupert B. Lowe, vice pres., Bakelite Co.; Robert A. Maes, exec. vice pres., Donner Foundation; Heston N. Potts, attorney; John Stewart, vice pres., Baxter & Stewart, Inc.; and H. Woodruff Tatlock, vice pres., Prudential Insurance Co.

John L. Ayers Honored

Mr. Ayers, Pacific northwest sales representative for du Pont dyes, heads Brotherhood of Migratory Peddlers, service organization of suppliers, as international president. His home is Portland, Ore.

Henry L. Ryer, Sales Engineer, W. E. Greene Corp. . . .

will provide sales and technical service in the Hudson River Valley area and New York State for Lodding doctors and rubber covered rolls made by Stowe-Woodward, Inc. He was recently purchasing agent for Scott Paper Co., Everett, Wash.

Stiegman ..... Brown

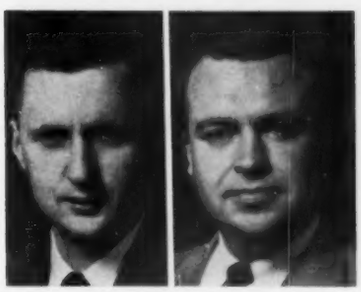
New Appointments at Hooker...

DR. CLARENCE A. STIEGMAN is named tech. director and DR. J. HOWARD BROWN gen. mgr., Niagara research and development, at Hooker Electrochemical Co., Niagara Falls, N.Y. Dr. Johannes H. Bruun, director of research and development, has resigned. Dr. Earl L. Whitford, vice pres. and director, will continue to coordinate Hooker's research. Dr. Stiegman continues as director of product development.

A. K. Hanchett Dies

Arthur K. Hanchett, former president and director of Hanchett Mfg. Co., Big Rapids, Mich., and Portland, Ore., died after a prolonged illness Oct. 19.

Born in Freemont, O., in 1877, he and his father in 1892 joined his Uncle John Hanchett in Big Rapids in the manufacture of saw swages used in lumbering. He graduated from the University of Michigan in 1902. Later he joined his father in the manufacture and development of automatic saw sharpening machines and, later, automatic grinders now in use throughout the world. He was president from 1927 till 1946, when he retired to serve in an advisory capacity. A son, Kent, is now president.

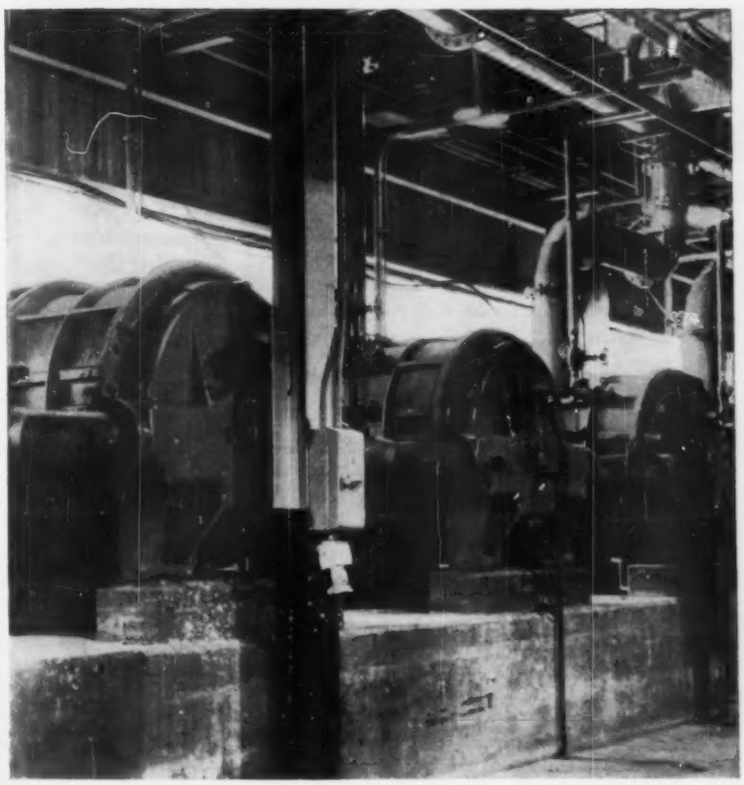


Pickering ..... White

Huyck Felt Expands Staff

After completion of thorough training at the Huyck plant in Rensselaer, N. Y., and in the field, BRUCE PICKERING is being assigned to the Southeastern area and GORDON WHITE to New England. Mr. Pickering, graduate of West Point, served overseas in Japan and Panama, and previously was employed by Southland Paper Mills. Mr. White, graduate chemist from Brown University, was technical representative for companies serving many papermakers in the Northeast. He was also a chemist with Champion-International Co.

What, actually, do Vacuum Pumps on paper machines handle?



Paper mill engineers know that it is actually a mixture of air and water vapor, but the custom of rating vacuum pumps in terms of air capacity alone causes this important fact to be frequently overlooked.

The presence of this water vapor causes a considerable reduction of the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump the bulk of this water vapor is effectively condensed, due to the Nash operating principle. The air handling capacity of the Nash is therefore not reduced.

That is one of the reasons why Nash Vacuum Pumps are standard in over a thousand leading Paper Mills.

NASH ENGINEERING COMPANY

443 WILSON ROAD, SO. NORWALK, CONN.

R. P. Calvert, New York Sales Rep., John W. Bolton . . .

. . . and The Emerson Mfg. Co. div. of Lawrence, Mass. Mr. Calvert was formerly with Continental Paper Co.

F. J. Murray, Jr., New Western Manager . . .

. . . for Nichols Engineering & Research Corp. at its new office at 405 Montgomery St., San Francisco, Calif.

Henry M. Shepard Joins Hiabob Hydraulics, Inc. . . .

. . . in Ely, Minn. Mr. Shepard was formerly forest engineer of the American Pulpwood Assn. Hiabob is beginning immediate manufacture of a light, relatively inexpensive pulpwood portable barker. It weighs less than a ton, can be mounted on pickup truck, trailer or dray. With a capacity of about 4 to 5 tons per hr., it will handle all log lengths in sizes from 3 to 30 in. in diameter.

Chemical Pulping Processes

The high degree of chemical, mechanical and physical control over materials and operations in the Chemipulp and Chemipulp-KC systems results in maximum plant output, high pulp quality and low operating costs.

- Circulating Systems
- Chip Distributor
- Chip Pretreatment
- Waste-Liquor SO_2 Gas and Heat Recovery
- Independent Recovery System
- Jet-Type Sulphur Burners
- Hot Acid System
- Hydroheater
- Spray-Type SO_2 Gas Cooling System
- Acid System (*Bubble Absorption*)

Chemipulp Process Inc.

Watertown, N. Y.

Associated with

Chemipulp Process Ltd., 253 Ontario St., Kingston, Ont.

●

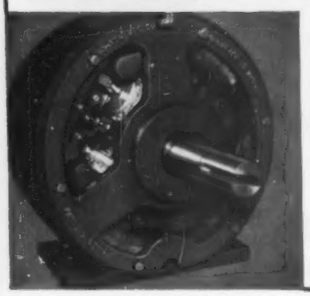
Pacific Coast Representative

A. H. Lundberg, Inc., P. O. Box 202, Mercer Island, Wash.

Howard W. Bartlett, New Mgr., Paper Chemicals, Pennsylvania Chemical Corp. . . .

. . . will supervise paper industry projects in the Clairton, Pa. laboratories and coordinate technical service through Picco's sales offices. A graduate of New York State College of Forestry, Mr. Bartlett has 20 years experience with pulp and paper equipment.

STOP TELESCOPING ROLLS MUSHROOMING CORES



Use Air Operated HORTON Clutches and Brakes to control the sheet tension on your winders and back stands. Take the guess work out of tensioning and let HORTON equipment give you uniform tight rolls all the time.

VARIABLE SPEED CLUTCH PULLEYS
GOVERNOR CONTROLLED BRAKES

HORTON MFG. CO., INC.

MINNEAPOLIS 14, MINNESOTA

Samuel M. Bratton, Consultant

. . . hangs out his shingle as consultant on papermaking machines after recent trip to Japan to help start up 208 in. newsprint machine with vacuum pickup at Oji Paper Co.'s Tomakomai Mill. He had been vice pres. and chief engineer of The Pusey & Jones Corp., retiring as of Oct. 31. Since 1917, his work took him to many mills in America and Europe. As consultant, he will operate from 1405 Shipley Road, Wilmington 3, Del.

PULP & PAPER CHEMICALS COLUMN

How to Dilute Hydrogen Peroxide

Methods and equipment for diluting commercial grades of hydrogen peroxide are described in a new booklet. Included are dilution formulas for 27½%, 35% and 50% hydrogen peroxide, information on containers, stability tests and analysis of dilute solutions as well as four dilution charts. Write to Solvay Process Div., Allied Chemical & Dye Corp., 61 Broadway, New York 6, N.Y.

To Preserve Starch Paste

A proper amount of a fungicide, Dowicide G, incorporated in starch adhesive, makes the glue line of corrugated board mold resistant. Since the fungicide is in the water phase of the paste, some of it penetrates the paper on either side of the glue line, giving mold resistance to the liner and the corrugating medium.

Ask for "Use of Dowicide Preservatives in Corrugated Board," The Dow Chemical Co., Midland, Mich.

Organic Chemicals Available

Benzoguanamine, an organic chemical adaptable for many uses in the paper products industry, is now available commercially in the U.S. Resins containing benzoguanamine are used in manufacture of paper products. Tennessee Products and Chemical Corp. announces that this chemical is now in full production and that it is now producing benzonitrile in commercial quantities. Benzonitrile is a basic chemical used in production of benzoguanamine and also is widely adaptable for synthetic coatings, etc. A colorless liquid with an almond-like odor, it is immiscible with water and is particularly useful as a solvent.

Stop Grease Penetration

Only a thin layer of film of Cypel paper resin is needed to obtain exceptional resistance to grease and oils. This new American Cyanamid resin is compatible with most coating and sizing materials, is supplied as an anionic emulsion and produces a very flexible film with good heat-sealing qualities. P&P learned about this from a technical director of a mill who says it is a "very hot item."

Chemical Firm Expands

W. M. Gillies, Inc. are now sales reps for Fleetwood Chemical Co., Inc., advises Jim Gabler, Fleetwood president. Gillies will provide additional coverage for Fleetwood in Central and Southern Atlantic States and Midwest, and to the Pacific Coast. Setting up operations for this new coverage is A. D. "Sandy" Brown of Gillies Eastern Corp.

Nalco 201 Now in Liquid

A new chlorinated phenolic type slime control agent, Nalco 201, previously available in ball briquette form, now comes in a highly stable liquid form. Used for general microbiological control and in recirculating cooling water systems, it is said to be an effective control for bacteria and fungi. Nalco 201 also contains penetrating and dispersing agents. Write to National Aluminate Corp., 6213 West 66th Pl., Chicago 38, Ill.

Wet Addition Makes Saving

Considerable interest in Morningstar, Nicol Inc's. new O Gum-909 used as a wet-end additive to increase titanium dioxide retention in sizing and coating work is reported. It will, says MN, save more than it costs in production of high-opacity papers and high-whiteness coated stocks where 25 to 30 lb. of tiO_2 or more per ton of product is used. A 50% in pigment loss in white water is not unusual, they say.

A new line of chlorinated potato starches, Arogums, has been introduced to bring quicker cooking, better luster, greater brightness, more flexible coating and improved penetration in paper work. MN is at 630 West 51st St., New York 19, N.Y.

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TENNESSEE CORPORATION
LIQUID
SULFUR DIOXIDE
HIGHEST QUALITY
SO2
For Effective Removal of
RESIDUAL CHLORINE
Tennessee's liquid Sulfur Dioxide is a most efficient and economical antichlor. Removes residual chlorine and other materials which cause color reversion or yellowing with age. It also eliminates excessive residual chlorine in water.
PULP
BLEACHING CHEMICALS
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WASHER
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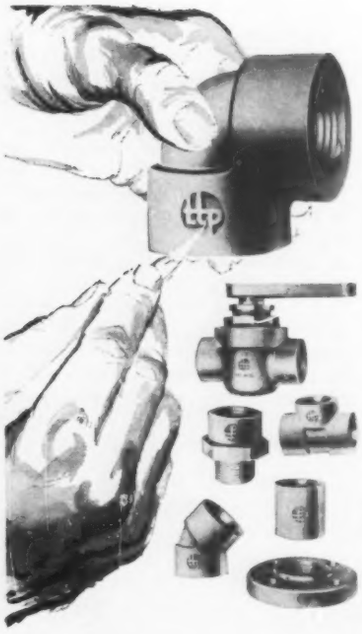
Tennessee's Liquid Sulfur Dioxide practically 100% pure, is also very effective as a reducing, bleaching, and neutralizing agent, preservative and pH control.
Available in:
CYLINDERS
TON DRUMS
TANK TRUCKS
TANK CARS
We would like to consult with you on the possibilities of Tennessee's Liquid Sulfur Dioxide in your processing.
TENNESSEE TC CORPORATION
617-29 Grant Building, Atlanta, Georgia



How to stop piping corrosion

This mark identifies the leading brand of PVC fittings, flanges and valves. Made by Tube Turns Plastics—injection molded by the exclusive Hendry process—unsurpassed for *chemical resistance, strength* and *uniformity.*

The **ttp** line includes sizes of ½" through 4", threaded or socket type, normal and high-impact grades . . . plug and lift check valves . . . drainage fittings . . . solvent cement and thread lubricant. Available from your nearby distributor.

Mail coupon for Bulletins 119 and 122.

TUBE TURNS PLASTICS, INC.

Louisville 11, Kentucky

Call your TUBE TURNS PLASTICS' Distributor

TUBE TURNS PLASTICS, INC.
Department PA-12
Louisville 11, Kentucky

Please send Bulletins TTP 119 and 122 on PVC piping and ttp products.

Company Name _____

Company Address _____

City _____ Zone ___ State _____

Your Name _____

Position _____

Opportunity Knocks

"Growth figures prepared by the U. S. Dept. of Commerce for the ten year period ending in 1965 are quite impressive. However, too many of us, I fear, look at these figures and assume that, with such fantastic growth as this country will experience, we will all share equally. Business men who are satisfied that a 40% growth is adequate and who plan to sit back and enjoy this expansion may well be in for a sad awakening. But the opportunity for expansion well above a 40% figure is very much for the taking for those who make the effort."—**G. WILLING PEPPER,** vice president and director, Scott Paper Co.

Basic Principles

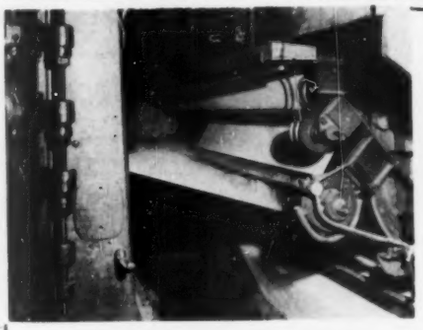
"No organization can be really strong that ignores the basic and eternal principles of human conduct—mutual consideration, mutual confidence, complete sincerity."—**REUBEN B. ROBERTSON,** board chairman, The Champion Paper and Fibre Co.

First Priority

"Because manufacturing is the most important forest industry, first priority must be given in my opinion to pulp and paper industries and other large conversion units, especially the great integrated organizations, because of their stability, the enormous investment required for their establishment, their continuous prosecution of research and development of new and better uses for wood, their ability to offer continuous, profitable employment, their support of communities, and their direct and indirect contributions to the tax structure."—**GORDON SLOAN,** chief justice of British Columbia.

The Squeeze is On . . .

"We are caught now in a squeeze between lowering prices and higher costs of operation. But I am not pessimistic. On the West Coast the decline in lumber has been responsible for a general softening in the market for forest products. Prices and volumes could be saved by drastic changes in U.S. fiscal policy aimed at increasing housing. But whether we can expect such changes in the light of present anti-inflationary sentiment is a big question."—**RALPH M. SHAW,** newly appointed president, MacMillan & Bloedel, Ltd.



Improve Paper Quality
with
DUPASQUIER DRIPLESS STEAM SHOWER PIPE

- **WET END**—breaks up bubbles, disperses foam
- **DRY END**—increases sheet moisture, improves finish, lowers bulk and caliper
- **SAFELY USED** anywhere dripless steam desired

Custom Built for Any Machine
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STEAM FITTERS — PIPING CONTRACTORS
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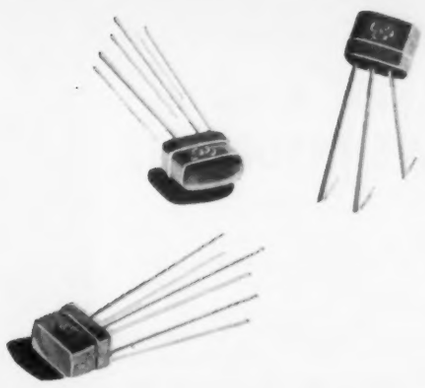
Sulphur

helps to create
Headline Products

GERMANIUM



Not too long ago this relatively rare metal was a laboratory curiosity. What to do with it? Today, it's the heart of the tiny transistor—the latest giant of electronics!

What's the connection between Sulphur and Germanium?

There are two, in fact. One is man-made, involving the routine leaching of Germanium ores with Sulphuric Acid prior to tetrachloride distillation. The other takes advantage of a peculiar property of the natural mineral, Germanium Sulphide. This mineral can be volatilized and then sublimed, providing an effective method of separating the Germanium from gangue material. The process is called "Concentration of Germanium by Sulphide Sublimation".

Again Sulphur, through its major derivative, Sulphuric Acid, and a natural sulphide play an important role in our ever-expanding economy. It is difficult to find many items in the broad chemical-metallurgical field that do not somewhere along the production line make use of Sulphur or a derivative.

Texas Gulf Sulphur Co.

75 East 45th Street, New York 17, N. Y.
811 Rusk Avenue, Houston 2, Texas

Sulphur Producing Units
- Newgulf, Texas
- Moss Bluff, Texas
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- Worland, Wyoming

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THE CHEAPEST KIND of DOWN-TIME INSURANCE

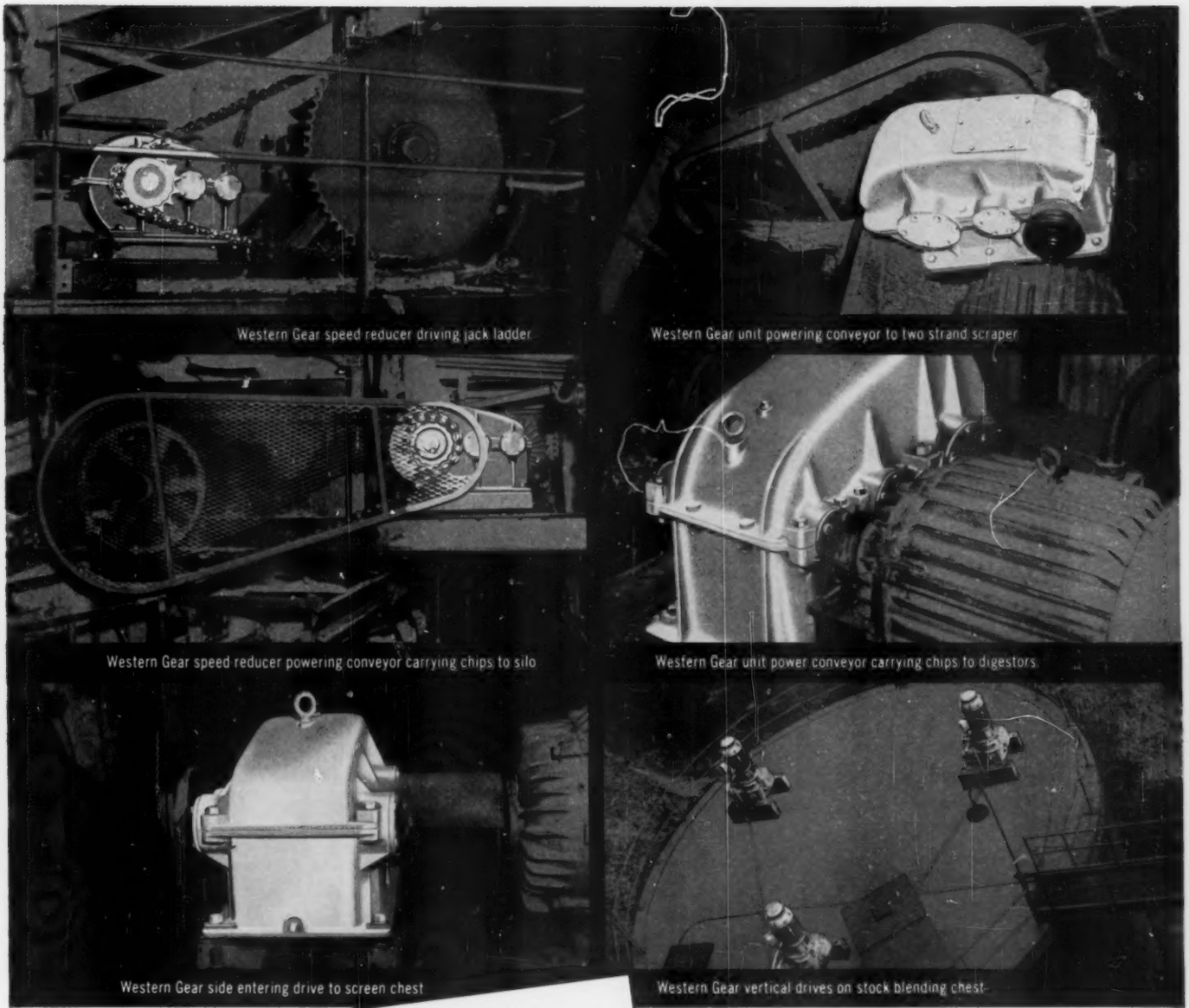
Pennies per foot buys protection from costly down-time. Extremely tough Damascus stainless absorbs bumps and blows without damage. Protects personnel and equipment against danger of sudden leaks. Eliminates the possibility of expensive down-time because of service line failure. Make it a policy always to specify stainless pipe and tubing—a must on high temperature or corrosive applications—a wise investment on any line critical to production.

DAMASCUS TUBE COMPANY

STAINLESS STEEL TUBING AND PIPE

GREENVILLE, PENNSYLVANIA

FORMED STEEL TUBE INSTITUTE



Western Gear speed reducer driving jack ladder

Western Gear unit powering conveyor to two strand scraper

Western Gear speed reducer powering conveyor carrying chips to silo

Western Gear unit power conveyor carrying chips to digestors

Western Gear side entering drive to screen chest

Western Gear vertical drives on stock blending chest

Here's why leading mills choose WESTERN GEAR Speed Reducers!

No. 6 in a Series Rayonier, Inc. Jesup, Ga.

For many years, Western Gear speed reducers have been performing rugged, reliable, trouble-free duty at the Rayonier, Inc., Jesup, Georgia pulp mill.

This installation is typical of thousands throughout the United States that earn excellent service records for Western Gear equipment. This is no accident, but the result of intimate knowledge of the industry plus 69 years of solid engineering, designing and manufacturing experience.

Get the right drive for your job from Western Gear! Get your Western Gear man into the act. Use the coupon to get his name and address. Important catalogs, too.

CALL THE WESTERN GEAR MAN!

Western Gear representatives stationed in principal cities. Use the adjoining coupon to get his name and address.

"The difference is reliability" • Since 1888

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PLANTS AT LYNWOOD, PASADENA, BELMONT, SAN FRANCISCO (CALIF.) SEATTLE AND HOUSTON • REPRESENTATIVES IN PRINCIPAL CITIES

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I would like to talk to my Western Gear man about a drive problem. Please send his name and:

- ☐ STRAIT-LINE REDUCER BULLETIN 5616
- ☐ PARALLEL SHAFT SPEED REDUCER BULLETIN 5402
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Glenn Malme • WESTERN GEAR CORPORATION
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City_____ State_____

These modern instruments, valves and level controls are components of the Masoneilan Drying and Drainage System.

8 Important Savings

with Mason-Neilan Engineered Drying and Drainage Systems

Here is a way to improve operation of paper machines with modern high operating speeds and a wider range of operating pressures . . . use a completely Mason-Neilan engineered steaming and evacuation system. Mason-Neilan designs and supervises installation of the entire system — one-source with undivided responsibility for all equipment. These are the eight important advantages you get with these Mason-Neilan engineered systems . . .

IMPROVED QUALITY
Complete control of all driers prevents over drying of wood fiber and too rapid drying of the sheet.

INCREASED PRODUCTION
Continuous evacuation of condensate, air, and non-condensables from driers increases efficiency — permits greater machine speeds, increased machine capacity.

UNIFORMLY DRIED SHEET
Proper elimination of excess condensate and non-condensables results in more uniform drying across the entire drier shell surface.

REDUCED POWER REQUIREMENTS
Proper evacuation reduces drier load, thus cutting horsepower required.

IMPROVED HEAT TRANSFER
Proper evacuation increases drier efficiency, improves heat transfer to the sheet.

REDUCED MAINTENANCE
Optimum removal of condensate eliminates off-balance forces which can cause wear in drier journals and possible strain in machine drive and breakage of stationary siphon pipes.

STEAM ECONOMY
Cascading of steam from dry end to wet end sections in each group of driers results in more efficient utilization of steam.

LONGER FELT LIFE
Since most felt driers do not have a separate drive, but are driven by the felt, proper evacuation results in longer felt life.

NEW BULLETIN PRESENTS TYPICAL SYSTEMS AND CONTROLS . . . Mason-Neilan offers basic data on selection and application of Drainage Systems and the paper machine controls required. Contact the Mason-Neilan office nearest you, or write direct for your copy. Then, take advantage of this experienced engineering, call on Mason-Neilan for specific recommendations.

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Division of Worthington Corporation

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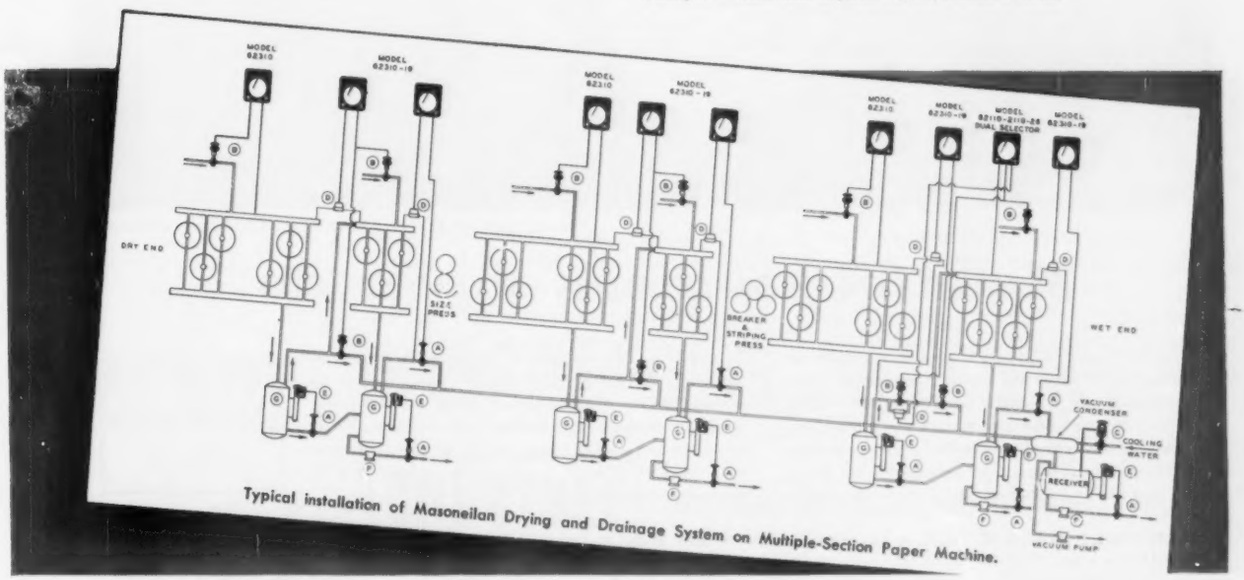


Typical installation of Masoneilan Drying and Drainage System on Multiple-Section Paper Machine.

Have any questions about pulp?

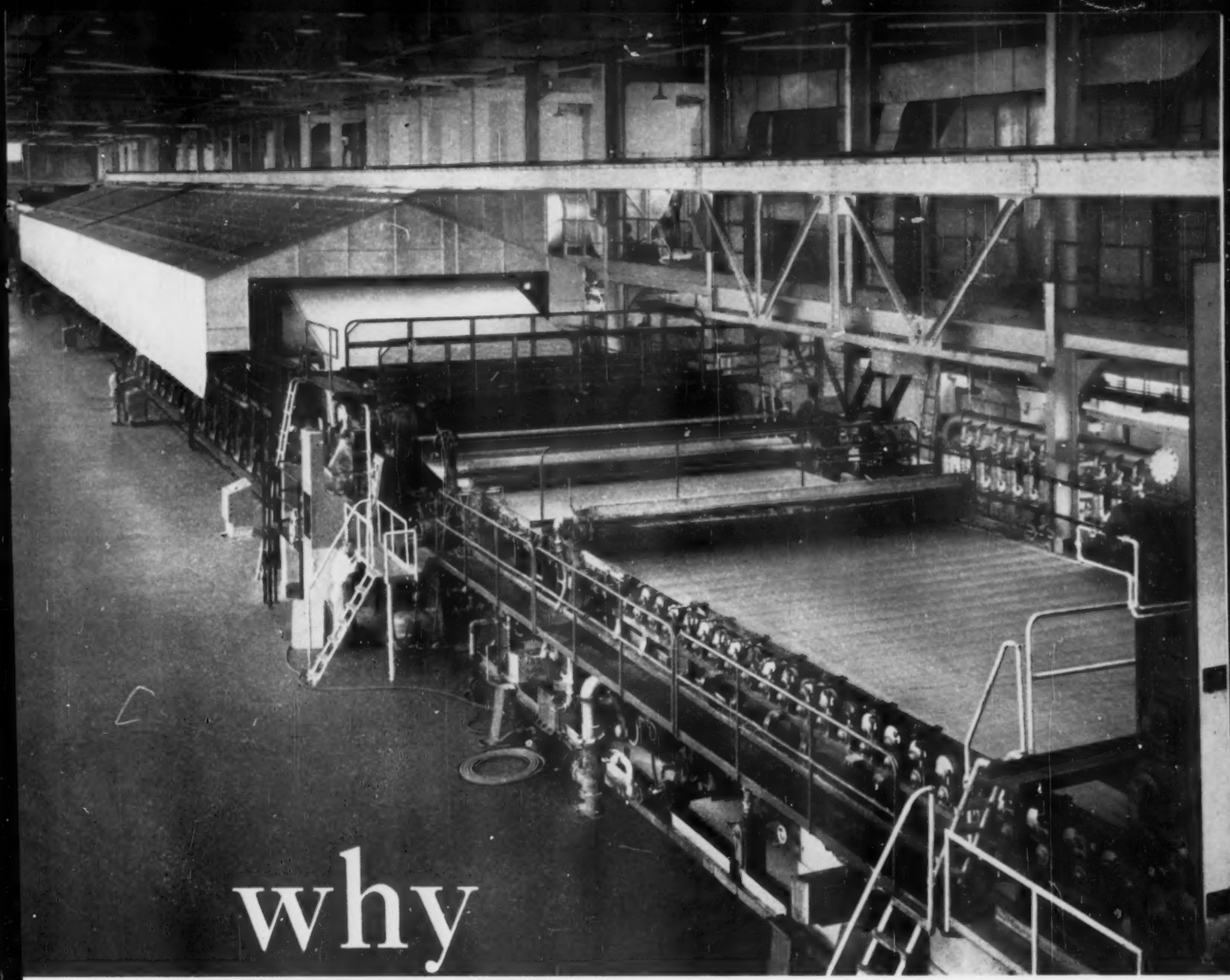
The pulp you see in this illustration is Abitibi Bleached Sulphite

Mead customers never do!

There's never a doubt about supply or delivery on time. Vast natural reserves and the resources of eight great mills make Mead the dependable source of supply. And Mead's modern and extensive research facilities assure you of the kind of pulp that meets or exceeds any standard of quality. Tell us about your pulp requirements. Whether the pulp you need is chemical or mechanical, from hardwoods or soft woods, bleached or unbleached, our representative will gladly show you why Mead answers your pulp demands best.

MEAD
pulp

MEAD PULP SALES, INC. • **Distributors of Wood Pulp** • *Bleached and Unbleached Chemical and Mechanical Wood Pulp*
230 Park Ave., New York 17 • 20 North Wacker Drive, Chicago 6 • 118 W. First St., Dayton 2 • 1504 Sherbrooke St., W., Montreal, Can.



stainless equipment helps you run your mill at a profit

The soundest way to beat rising costs is to install trouble-free plant units that enable your men to devote their energy to maintaining quality and high output. Stainless equipment does just that.

Some of the reasons for stainless steel's exceptional performance in the paper mill lie in its high strength, rigidity, corrosion and erosion resistance, freedom from buildup, and very easy cleaning. Boiled down, these reasons equal one important fact: Crucible stainless helps you run your mill at a profit.

Why not let an experienced Crucible engineer work with you to make the best, most economical use of stainless in your mill? And write for a copy of "Making the Most of Stainless Steels in the Pulp and Paper Industry"—it's 20-pages of useful data. *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor—Railway & Power Engineering Corp., Ltd.

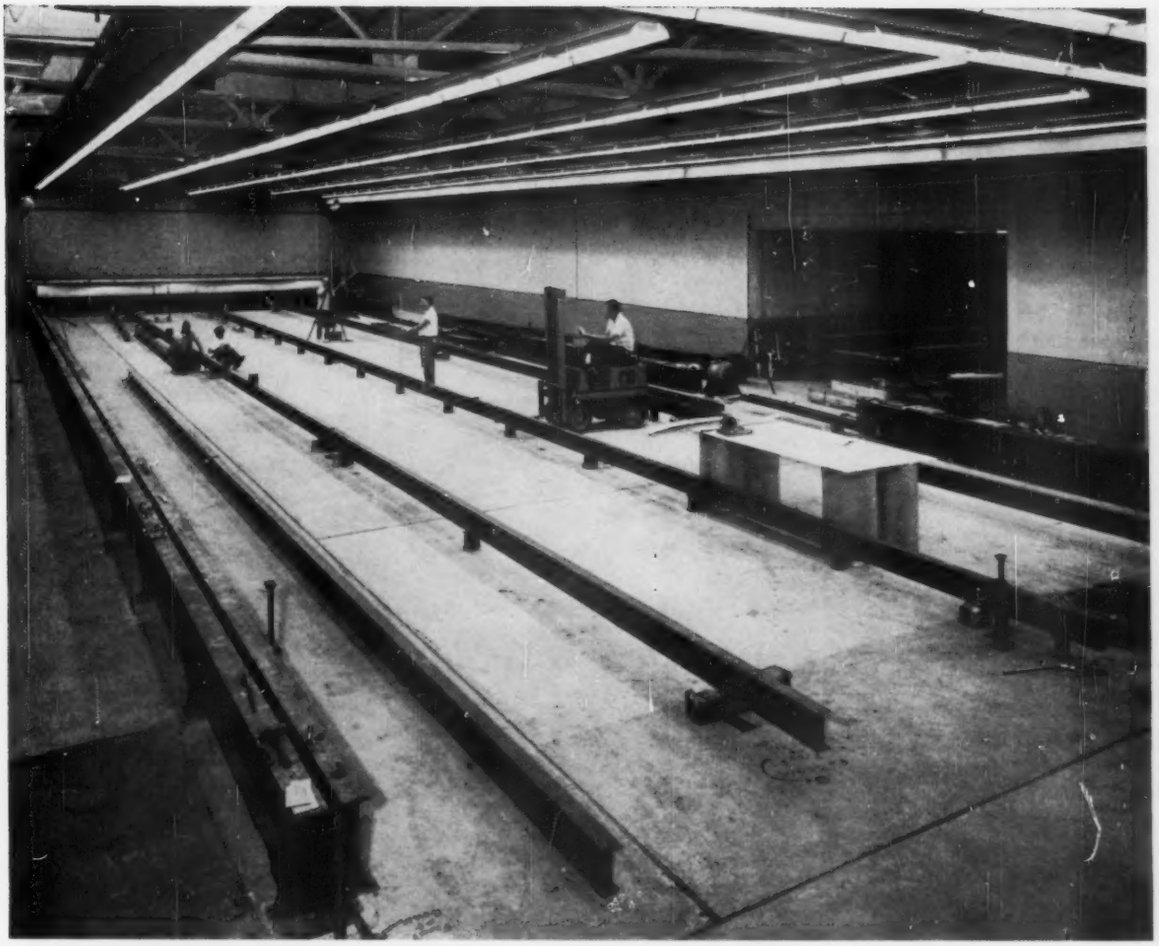
The paper mills want more!

Every paper mill that's tried this new pulp has requested additional tonnage!

HERE'S WHY: Alberta Hi-Brite bleached kraft pulp provides the superior qualities a paper needs in today's highly competitive market—*brightness, strength, cleanliness, opacity, forming properties, high viscosity!* And, you're assured a steady, on-the-continent supply of Alberta Hi-Brite! It's made in a new Canadian pulp mill that uses the most modern techniques and equipment . . . and draws from 2,000,000 acres of spruce and lodgepole timberland granted by the province of Alberta.

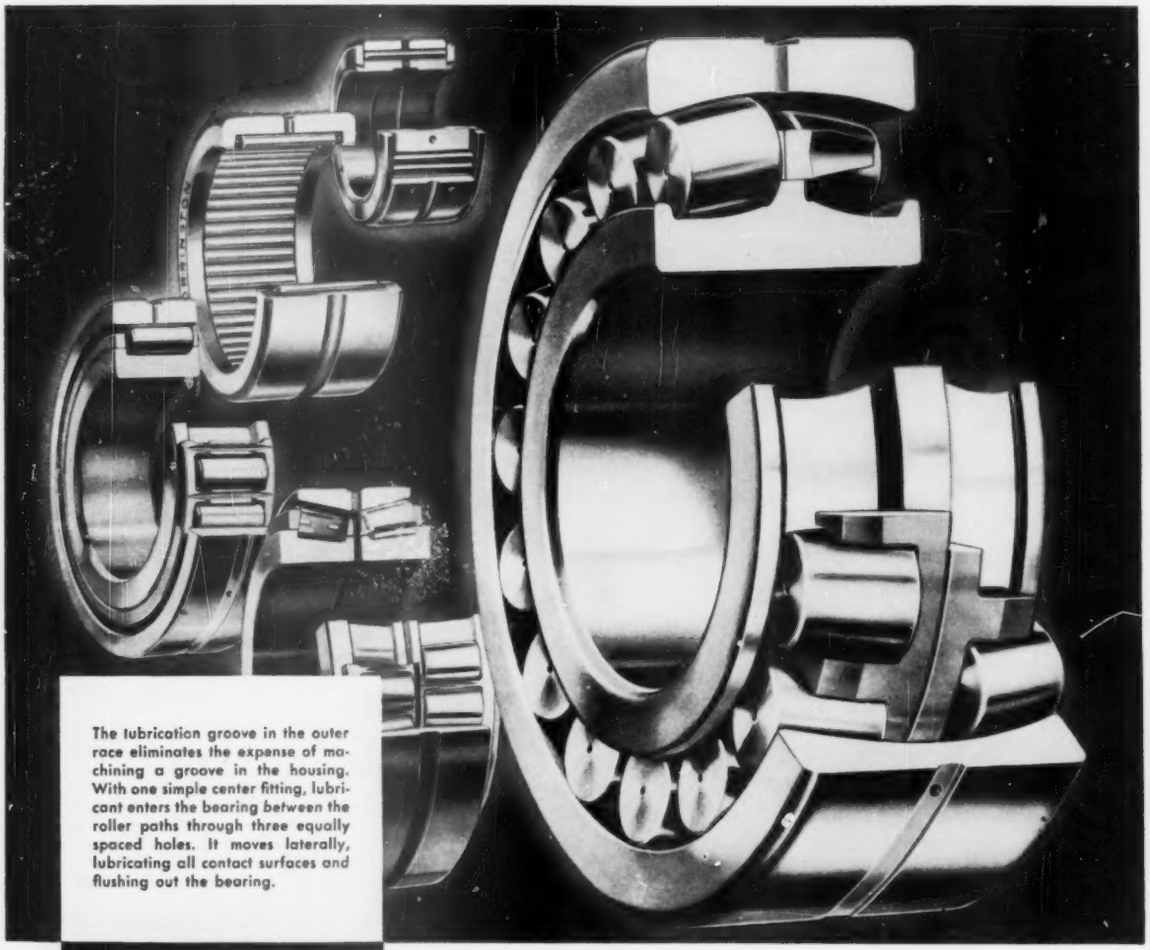
Order *your* cars from your St. Regis pulp representative or write: Dept. [illegible] Kraft Division, St. Regis Paper Company, 150 East 42nd Street, New York 17, N. Y.

St.Regis PAPER COMPANY
150 EAST 42ND STREET, NEW YORK 17, N. Y.
PULP PAPER PACKAGING PLASTICS

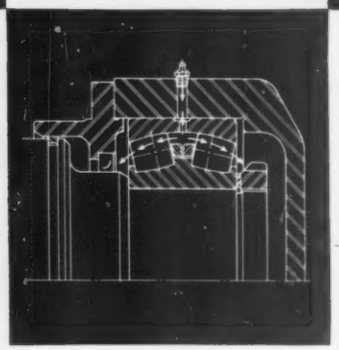


This is an Appleton Finishing Table, under construction. Capable of finishing wires as wide as 408″ and up to 229′ in length, it started operating in September. Like all of the new, highly specialized equipment recently installed, it was designed by Appleton Wire Works engineers to meet the changing requirements of the paper industry. Appleton Wire Works, Inc. General Offices, Appleton, Wis. Plants at Appleton and Montgomery, Ala. International Wire Works, Menasha, Wis., an affiliated company.

APPLETON WIRES ARE GOOD WIRES



The lubrication groove in the outer race eliminates the expense of machining a groove in the housing. With one simple center fitting, lubricant enters the bearing *between* the roller paths through three equally spaced holes. It moves laterally, lubricating all contact surfaces and flushing out the bearing.



A time-proved lubricating method now available on Torrington Spherical Roller Bearings

The circumferential groove in the outer race has met the test of experience in many Torrington Bearings, including Heavy Duty Needle Bearings, Aircraft Type Needle Bearings, Tapered and Radial Roller Bearings. Now the circumferential lubrication groove is available in Torrington Spherical Roller Bearings.

This design feature makes it possible to introduce lubricant *between* the roller paths without the expense of machining a groove in the housing. This groove is proportioned to provide generous lubricant flow capacity. Lubricant moves through the roller paths, flushing used lubricant and contaminants away from bearing contact surfaces.

Torrington Spherical Roller Bearings in many sizes may be ordered with this groove as desired at no additional cost. For further information, see your Torrington representative or write: **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

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For Reburning Lime Sludge

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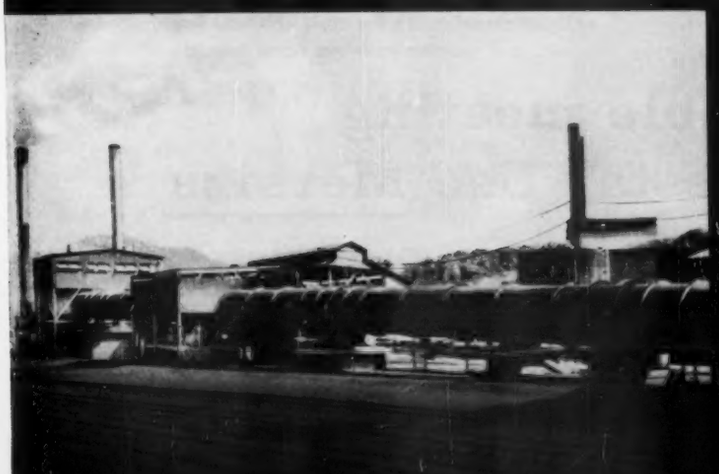
Over 1,250 Smidth rotary kilns have been furnished all over the world.



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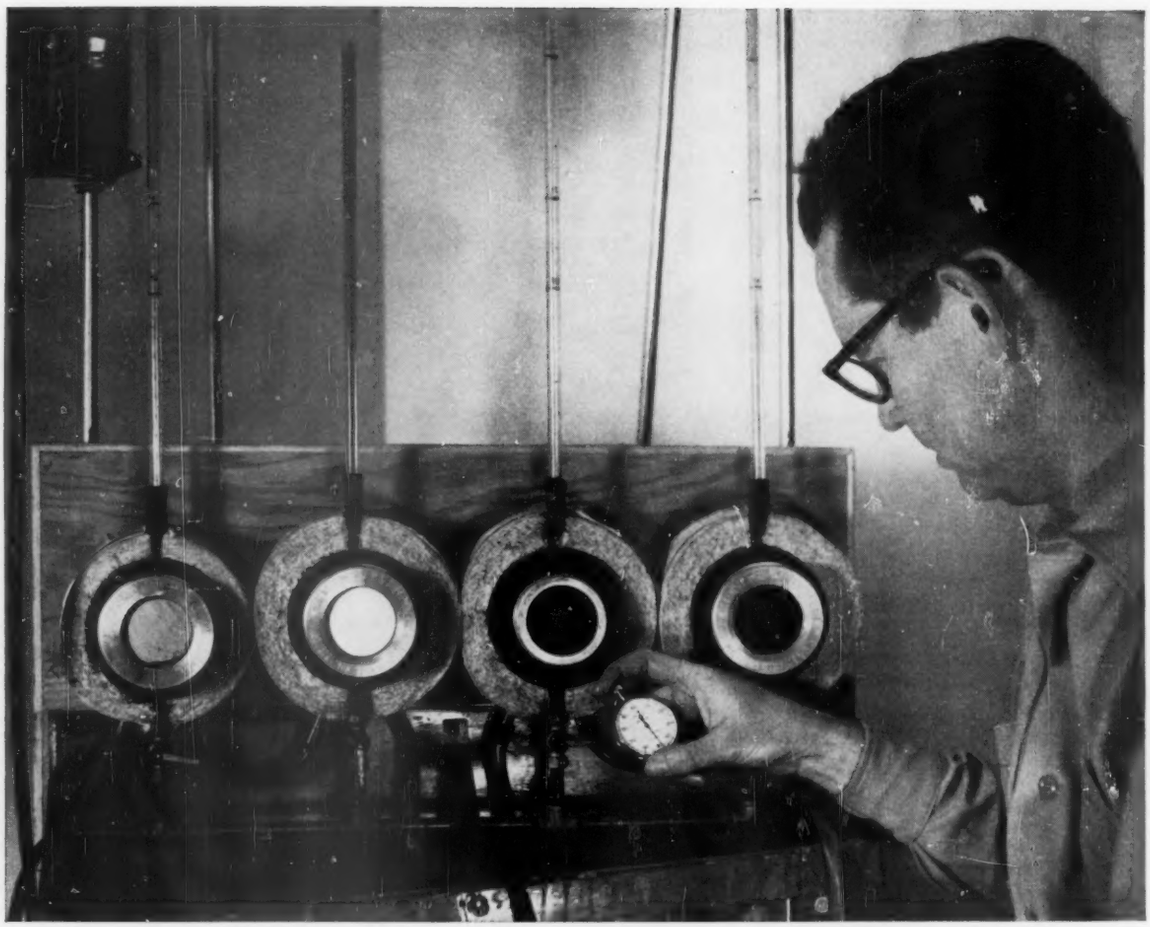

FOOD CONTAINER BOARD (at left) sized with 3% rosin compared on a penescope with food board sized with 2% Mersize. Note visible proof of the high sizing efficiency and greater water-resistance gained with Mersize.

Having trouble meeting penescope tests? Use Mersize

"Now we have no trouble meeting our penescope specifications." That's what Monsanto technical service men hear from food container board mills using Mersize.

From the day you begin using Mersize, you'll see the money-saving difference. You'll meet penescope specifications on the first try more often. You'll save time, extra work, and get more consistent, high-quality production.

Mersize is *chemically* tailored to give you dependable, uniform sizing. With Mersize you can rely on greater resistance to liquids with less size . . . and results will be more uniform day after day. A mill trial will prove it to you.

Out of every 10 mills that have given Mersize a thorough mill trial, 9 have become steady users.

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MONSANTO CHEMICAL COMPANY
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MERSIZE gives you 20% to 30% lower sizing costs
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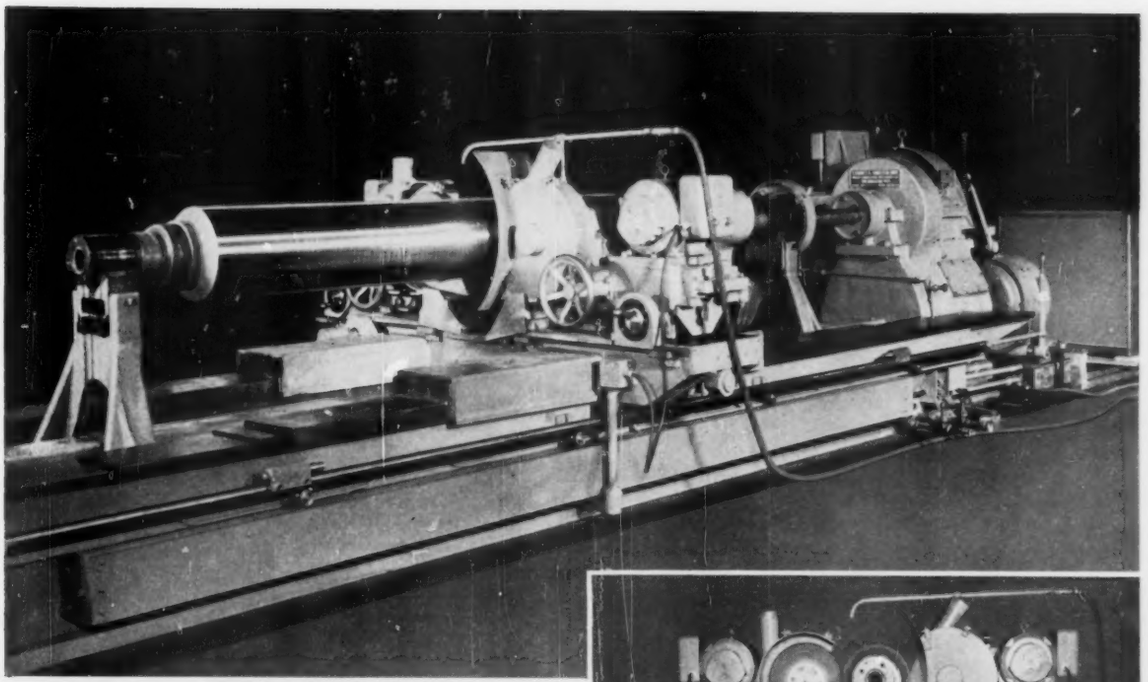

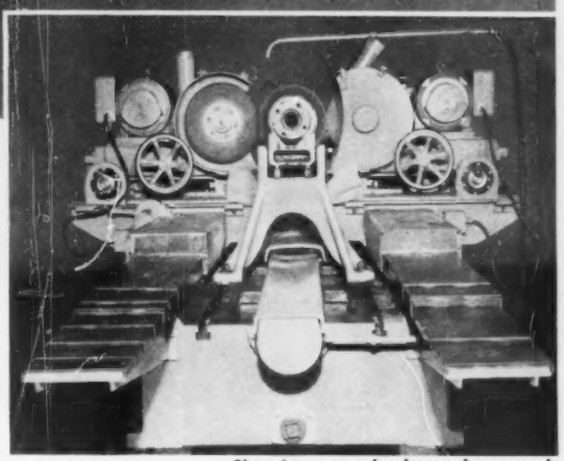

Showing one wheel-guard removed

DESIGNED ESPECIALLY FOR THE SMALL MILL

...This New #3 Type GHV

LOBDELL

ROLL GRINDER

...offers these outstanding features:

- Wider and heavier bed and carriage construction.
- Inverted Vee-ways ... stronger, better lubricated.
- Metallic telescoping way-covers give full protection.
- Crowning device ... newly designed to give full range of desired crown curves.
- Choice of A.C. or D.C. electrical equipment to suit mill needs.
- Grinding wheel mounted on end of wheel spindle for quick wheel change.
- Handwheel control on side of wheel-head permits observation of work while feeding wheel.
- Coarse and fine feed of wheel at operator's choice.
- Automatic wheel infeed to compensate for wheel wear on chilled iron.
- Self-contained wheel spindle ... forced feed lubrication with oil pressure control.

Maximum simplicity of design for fool-proof and error-free operation so far as effective design can help ... maximum accuracy of result on both iron and rubber covered rolls. Dust collection equipment available (not illustrated here).

Capable of grinding rolls from 6" to 32" or 36" and with face length according to bed length ... weighing 16 tons or less.

Write for detailed information on this new #3 Type GHV LOBDELL Grinder.

• CHILLED IRON ROLLS • MACHINE CALENDER STACKS • ROLL GRINDING MACHINES
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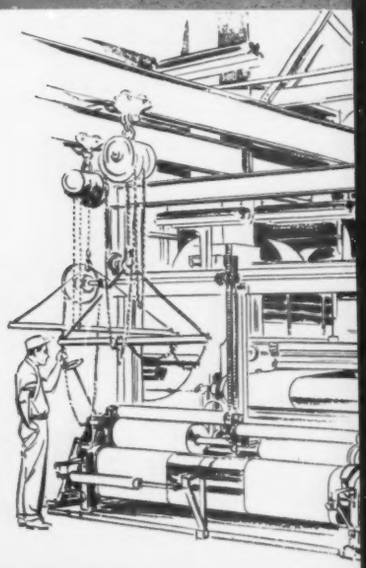

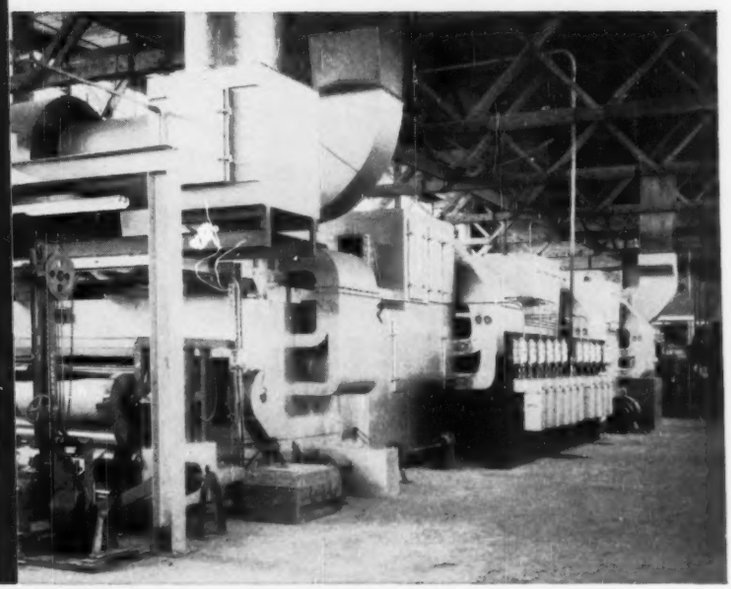

DRYING is the key to successful converting

In practically every instance the Ross Dryer utilizes pre-heated air as the drying element, circulating it around or impinging it upon the material being dried.

What is the key to this uniformly successful operation of the Ross Dryer on a great variety of products such as pressure sensitive tapes, insulating panels, treated packaging papers, film and foil, to name just a few? What is it that scoops up the moisture and carries it off most effectively?

The key? A truly 'Engineered Atmosphere' involving large volumes of pre-heated air—seemingly excessively large volumes—coupled with vigorous circulation and carefully worked out method of applying the air to the material being dried. Experience with heated air counts heavily in the study of such problems . . . and broad experience is certainly what Ross Engineers can bring to your drying problem.

In writing for more information about our work in this field, could you outline your problem? Our engineer could then discuss preliminary plans on his first call.

In the conversion of paper—waxing, embossing, coating, gumming, laminating, printing—Ross Engineering is associated with John Waldron Corporation, New Brunswick, N. J. to coordinate the machinery with the air-processing.

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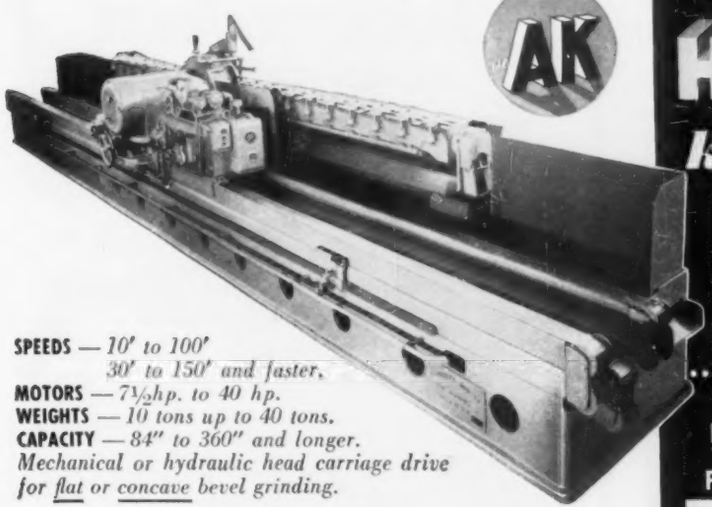
CALENDER ROLLS

MODEL **AK**



SPEEDS — *10′ to 100′*
30′ to 150′ and faster.
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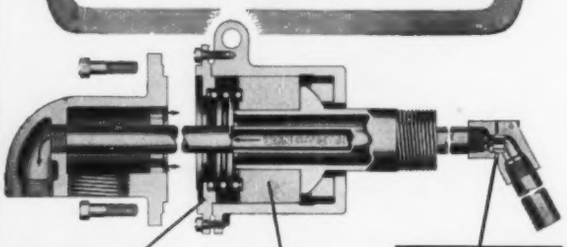
Johnson Joint

SELF-SUPPORTED TYPE with SYPHON ELBOW



ASSEMBLY PLATE — Holds internal parts in position when head is removed.

SELF-SUPPORTING — Needs no external supports of any kind.

SYPHON ELBOW — Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

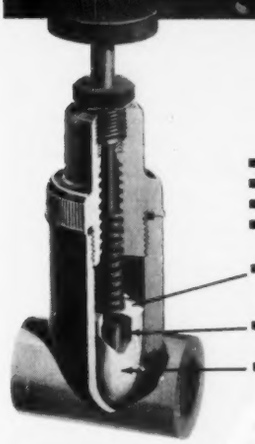
WRITE FOR INFORMATION

Bulletin S-2001 has all the facts on this joint-and-elbow combination that supports itself, has no packing, needs no lubrication, outmodes unwieldy syphon pipes. Johnson Joints are also available in pipe-supported and rod-supported types, to suit all operating needs.

The Johnson Corporation

849 Wood St., Three Rivers, Mich.

NEW! ALL-PLASTIC GATE VALVE



VANTON
FLEX-PLUG*
VALVE
½"-2" sizes

- No-pressure-drop construction of gate valve
- Throttling flow-control feature of globe valve
- PVC or styrene-copolymer construction
- Handles wide range of corrosives and slurries

- **Back-seating feature of cap:** when valve completely open, relieves pressure on packing.
- **Free-to-swivel plug:** provides even wear of cap, perfect closure.
- **Flexible synthetic cap:** easily replaced without removal of valve from line; minimal maintenance. Handles abrasive slurries without wear.

- **All-plastic design** — PVC or styrene-copolymer. Replaceable caps available in Neoprene, Buna-N, and Hypalon (Kel-F elastomer on special order).
- **Suitable for vacuum**—resilient cap makes excellent seal.
- **Adaptable** to all existing plastic pipe and fittings; especially suited to Vanton P, S, and N lines of plastic pipe and fittings.
- **Rated for 150-lb. service**—PVC line up to 140°F., styrene-copolymer line to 170°F.

*Pat. Pending

Catalog FP-1 gives full details. Write for it today!

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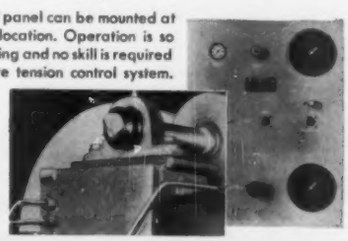
Maintain uniform tension . . . reproduce desired tension at will with the new Pneumatic Applications Co. tension control system. Performs with outstanding uniformity on all pneumatic winding and unwinding operations.

Load sensing journal varies pressure to clutch or brake, making tension adjustments instantly . . . automatically to provide exact tension throughout operation. Throttling type controller has proportional band of .067% . . . responds to load changes of a fraction of a pound at any control point.

Compact control panel can be mounted at any convenient location. Operation is so simple little training and no skill is required to operate entire tension control system.



Load sensing journal measures tension at the web of material for greatest accuracy. Sensitive circuit and unique multi-valued variable reset response rate absolutely eliminate unstable control (hunting).

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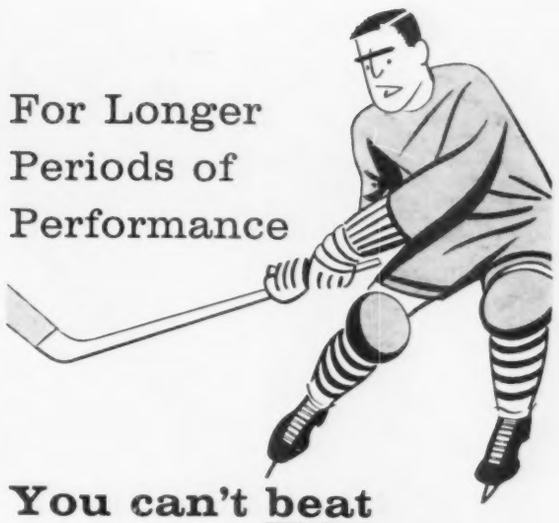

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If the star of your favorite hockey team
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you know he isn't scoring points.

It's the same with your felts.

If you have to change felts
because of a felt failure or because
your felts are worn—
you aren't making paper.

To beat the high cost of down time;
to keep your machines running at top speed
—longer . . . turning out tonnage
without broke or imperfections requires
felts that can take it . . .
felts that last longer
but are easy to put on—fast!

Ask your Hamilton Felt Service Salesman
about how Hamilton Felts will help
you, too, to keep out of the penalty box
and reduce the high cost of down time . . .

FREE! A Cap like mine

for your son, daughter, nephew, grandchild

HAM FELTZ says:

"Just write me on your company's letterhead at the address below and I'll be happy to send you a papermaker's cap just like mine. No obligation. The cap is adjustable—fits any head size, and carries a SAFETY SLOGAN. Supply limited. Write me today."

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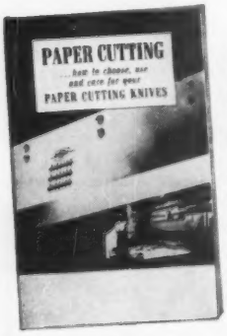
"If you're looking for clean-cut chips —look to DISSTON!"

Each Disston Chip-Master Chipper Knife is made of high-alloy steel. Each is specially heat treated and tempered to hold its edge under severe operating conditions. Each is hard and tough at the business edge, softer at the slots to absorb shocks. And each knife face is ground super-smooth to give extra-clean, money-saving chipping.

See your Disston distributor today . . . and see for yourself why Disston Chip-Masters are first choice with those who demand low-cost knife operation.



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with Disston 866 Paper Knives. Edges stay sharp, won't roll under or chip out. For free booklet, write to *Henry Disston Division, H. K. Porter Company, Inc., Philadelphia 35, Pa.*

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The man we seek must have at least 5 years all around experience in complete paper mill operation, knowledge of stock preparation, paper making and converting machinery as well as the architectural and structural construction of a paper mill. Engineering degree or equivalent experience —preferably mechanical—required. Age to 45. Position involves travel abroad.

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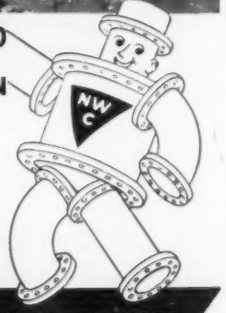

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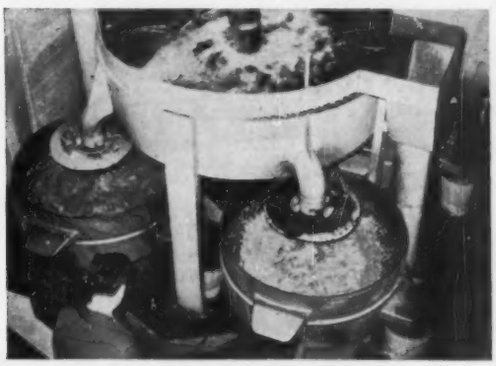
Weyerhaeuser Uses 27 SWECO Separators To Screen Water for Hydraulic Barkers

Hydraulic barking in the forest products industries has created new problems in suspended solids content of water – but Weyerhaeuser Timber Company has solved its water screening difficulties with fast new SWECO Vibrating Screen Separators.



Weyerhaeuser Timber Company uses 48" diameter SWECO *Separators to solve its effluent screening problem in hydraulic barking operations.*

Weyerhaeuser is using a total of 27 SWECO units – all 48" diameter – throughout its vast timber operations in the Northwest.

The SWECO Separators, operating with 105-mesh wire screen cloths (.0665" opening) clean 200 to 500 gallons of input water and effluent a minute. They are used to screen water being supplied to the barkers – to keep suspended solids from damaging pumps and other components. After the water has been used by the barkers, the SWECO units screen the effluent to keep it from clogging mill ponds.

Particles of bark recovered in the SWECO screening process are used as fuel in company power plants.

Screening Analysis and Recommendations Available

Your nearby SWECO District Engineer is available to help you with special screening problems. His "know-how" covers 200 different materials . . . wet and dry, coarse and fine, heavy and light. He will demonstrate, in your plant, how a SWECO Separator can screen your material economically and efficiently. No obligation, of course.

A complete data file on screening pulp and paper products plus a 22-page catalog are yours for the asking. Write for Bulletin S-112-19.

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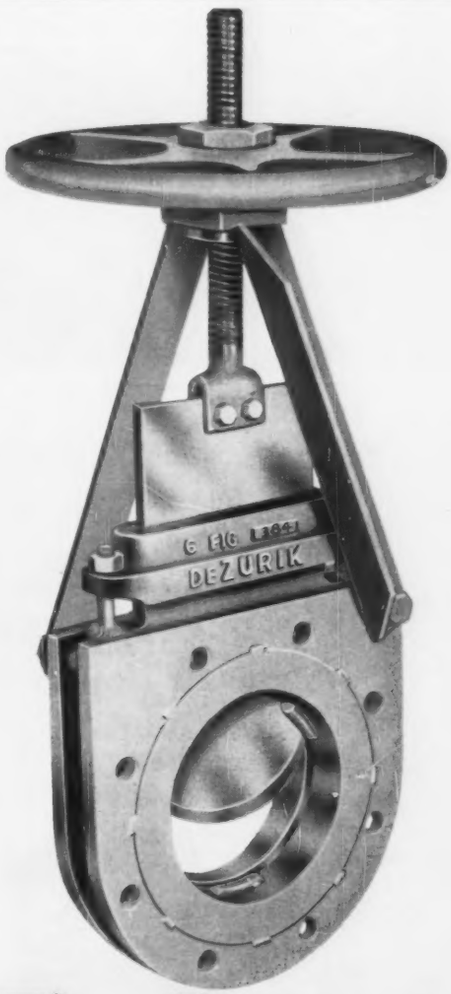
Engineers and Constructors . . . Manufacturers



The Newest

IN A GREAT LINE!

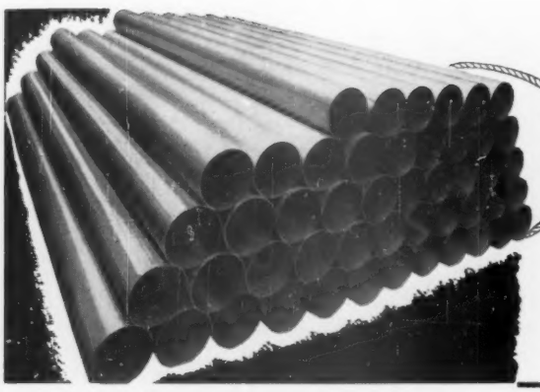
This *NEW* DeZurik Fabricated Bonnetless Knife Gate Valve gives you more worthwhile features for your money . . . features like

***All* parts coming in contact with stock are stainless steel.**

Round port bottom eliminates pockets where stock can build up and prevent shut-off. Clean-out plates are unnecessary!

DeZurik Knife Gate Valves are available with wafer or other face-to-face dimensions and a complete line of operating accessories. Write for more data.

DeZURIK CORPORATION
SARTELL, MINNESOTA



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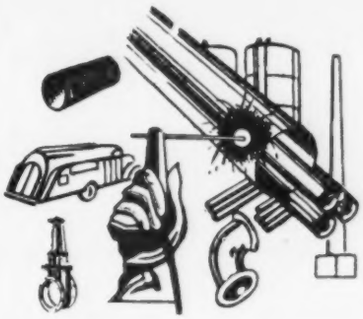

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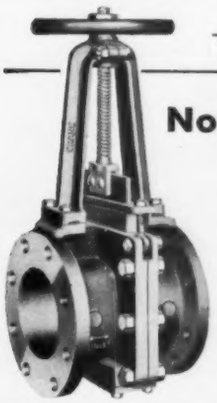

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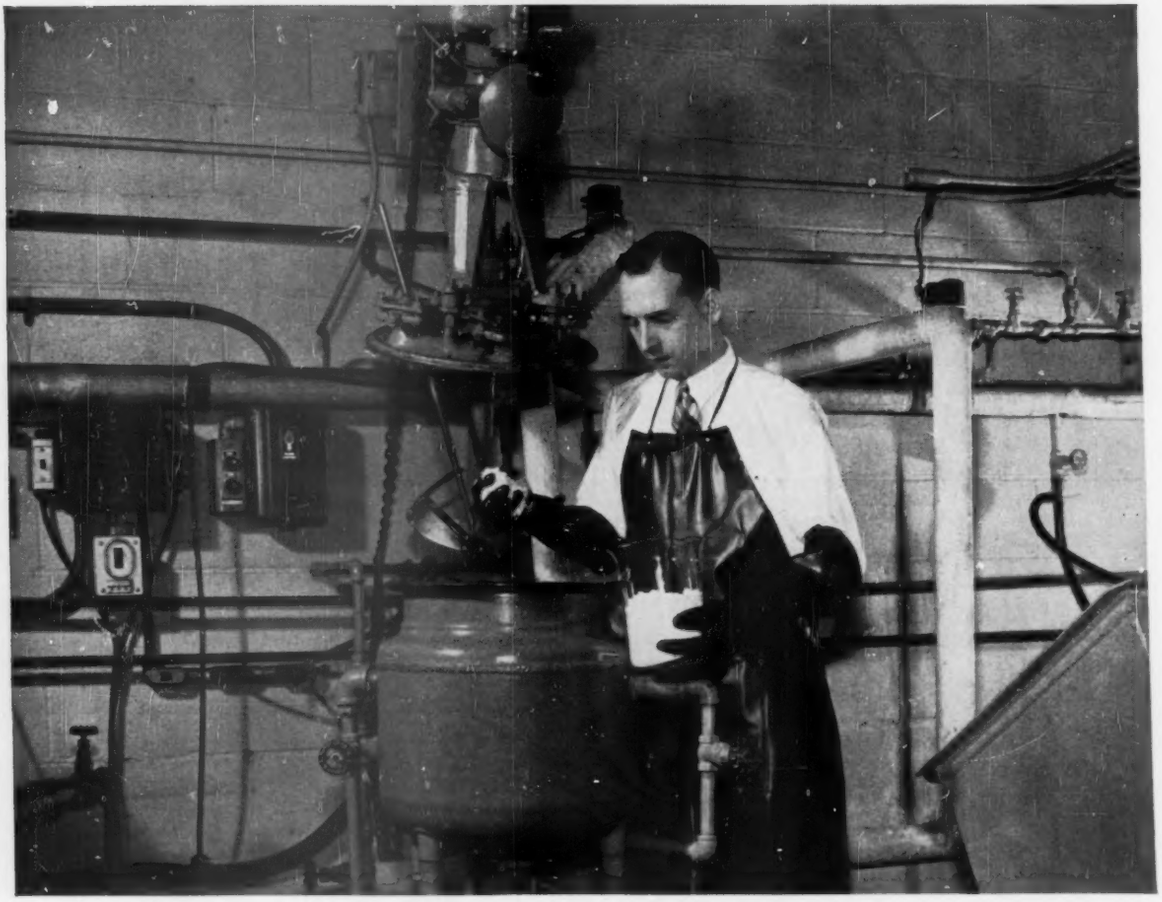

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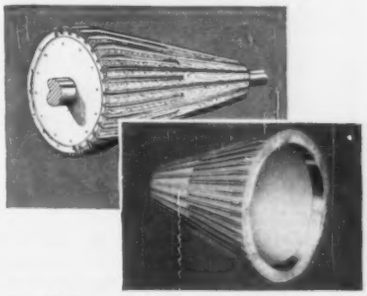

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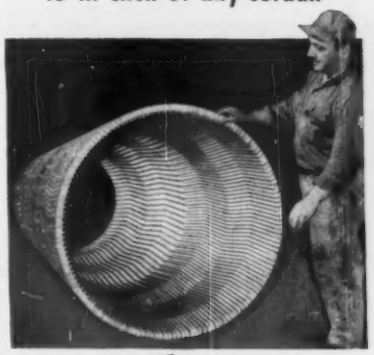

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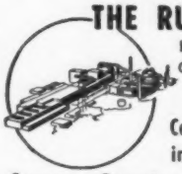
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The LAST WORD PULP & PAPER EDITORS' PAGE

A Husky, Energetic Competitor for Paper

We were invited the other day to a press party where a new development in aluminum packaging was announced.

We were interested because aluminum is a competitor on several fronts for pulp, paper and paperboard products and one of the most ingenious and energetic competitors.

The Kaiser Aluminum & Chemical Corp. has developed a new drawing technique (we saw the amazing machine in action in western Chicago). One swift continuous press stroke produces a seamless can body and bottom in one piece.

It already has taken a major customer away from paper.

Kraft Foods has decided the new aluminum container offers distinct advantages over a composite package it has been using for some cheese products consisting of a paperboard cylinder with a tinplate top and bottom. It may replace other paper packaging used by Kraft.

Air Reduction Sales is starting to package stainless steel electrodes in a deeply drawn two piece container. And Kaiser already has another customer—the U.S. Air Force for precision bearings.

Borrowing a Russian Technique

Reminiscent of things we read about happening at the United Nations, two Chicago newspaper reporters walked out of the press conference after Kaiser spokesmen declined to answer their question as to how much the aluminum cans cost.

Kaiser passed the buck to its customers. The president of Kraft Foods stood up and said he wouldn't be buying the cans if he didn't feel that when they get into better volume the costs would be about the same as for paper and tinplate.

When the reporters walked out, we couldn't help thinking a lot of newsprint companies would like to pose the same kind of question to the publishers of newspapers . . . to get the lowdown on their costs and profits.

Well, the tinplate world will have a lot more to worry about from this husky, energetic competitor—aluminum—than paper. A Kaiser spokesman told us: "We are not knocking or tearing down fiberboard or tinplate, but maybe we have reached a point where aluminum has an opportunity to move in where it fits. The other materials will be good for many uses, too."

Perhaps the paper and board industry could borrow some of the enthusiasm and initiative we saw demonstrated in these few hours with the Kaiser party.

Observations on Population Growth

Population growth is an irresistible force, seemingly, in assuring a vast future growth of the paper industry.

The world's 2.7 billion population has almost doubled in the past 70 years. It is expected to redouble every 42 years hereafter.

For the remainder of this century, the paper industry seems assured of a phenomenal growth. Even if there were no increases in per capita use, this would be so. Does anyone expect that per capita use in Russia and Mexico will remain at only about 25 lbs. annually? We read that paper cups are unknown in Russia. That sort of thing won't last long. How long will per capita use in Red China and India remain at only 3 or 2 lbs.? Compared to 432 lbs. per person in U.S.A.

Population growth came in for some gloomy discussion at the recent International Industrial Development Conference in San Francisco, sponsored by Time-Life International and Stanford Institute. A sociologist concluded that "human multiplication has gotten out of hand." When the world's population reaches 7 billion people, that is supposed to be all the earth can sustain. Birth rates continue while death rates are being greatly reduced. The poor are getting poorer because of this. But birth control is catching on in India and has cut Japan's birth rate in half in nine years.

The San Francisco Conference didn't get much of a tumble in the newspapers, because it was promotion for their competitors for readers, *Time* and *Life*. The 551 delegates from 62 nations talked of building a better world with free enterprise. They talked of bridging the vast gulf between the haves and have-nots, of the worldwide "clamor" for money, the increasing international flow of investment money.

Some future generation may be faced with "the most violent population explosion in history." But for the intervening generations, we can be sure that millions of tons more paper will be needed.

An Interesting Experiment

We noticed a small item in the *Wall Street Journal* as follows:

"Indiana's Cummins Engine Co. puts a price plate on all machines installed in its plant so that workers will know their value."

It will be interesting to see how effective this industrial personnel relation gesture turns out. If pulp and paper companies began to put their prices on some of the paper machines or pulp dryers and some of the logging equipment, some of the workers might be startled.

On Panel at Georgia Tech . . .

William F. Diehl, Jr., Southern editor for PULP & PAPER, served with three others on a panel at an annual publication clinic staged by Georgia Tech in Atlanta for 250 college and high school yearbook editors and faculty advisors. The panel discussed "The Evolution of the Photo Story." Bill's efforts in developing such stories from the South for our readers was a factor in his selection to serve.

More Management Gobbledygook

Recently we ran on this page some examples of well worn management or annual reports lingo, interpreted by a fun-loving Chicago financial writer.

Some of these will be familiar to you. His interpretations are in italics:

Although the backlog of orders is smaller than last year, this decrease is reflected in elimination of our government contract, which will lessen our dependence on whims of congressional appropriations.

"Our lobbyist failed to get the business.

"Since its listing on the stock exchange, your company has noted with pride public interest as evidenced by a growing volume of its common stock shares."

"The directors are selling out."

"Your company has undertaken a long-range program to diversify its operations and broaden its resources."

"We've been offered the dandiest uranium mine."

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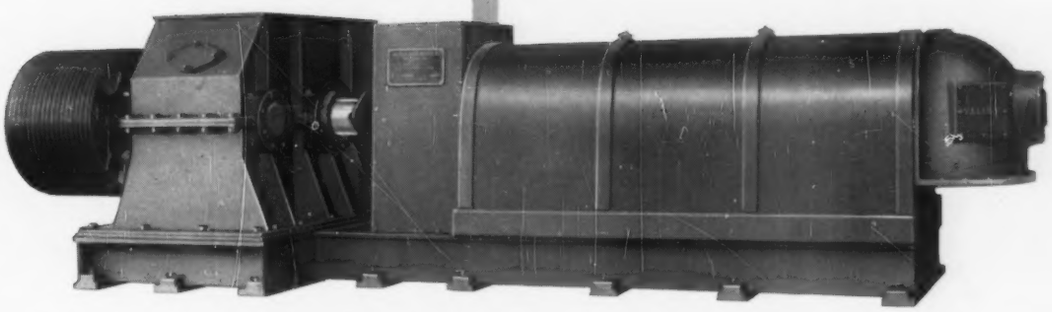

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